K

Trains

25¢

February, 1946

MARS LIGHT . . . New Safety Signal Protects C&EI Passenger Trains . . .

The swerving figure "8" pattern of the new *Mars Light* safety signal pierces fog and rain with the intensity of a high-powered searchlight. Suspended on the rear gate of passenger trains, this electrically powered warning device operates automatically upon application of the emergency brake. Its oscillating red warning pattern is visible on straight track, curves or bends at a distance up to 8 miles in pitch dark, up to 3 miles in daylight. *Mars Lights* are now standard safety equipment on all C & E I passenger trains.

Always alert to the improvement of existing equipment for added passenger protection, the C & E I is among the first in the application of the *Mars Light.* This *Safety First* precaution is part of the C & E I betterment program for increased Speed and Service over *The Chicago Line.*

The C & E I is the short, fast route from Chicago south through three southern gateways. Look for future announcements of the fast streamlined "Trains of Tomorrow"—the finest in railroad transportation to come—now under construction by Pullman-Standard and scheduled for delivery to *The Chicago Line.*

SPEED C&EI SERVICE The CHICAGO Line

CHICAGO & EASTERN ILLINOIS *Railroad*

The Chicago Line

Trains

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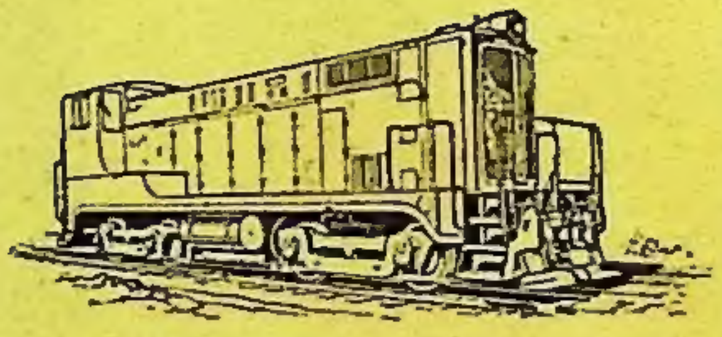

"The railroad is a living thing. It is not just a collection of inanimate locomotives, cars, track and buildings. It is smoke, steam and cinders. It is a Mallet articulated tackling Seventeen Mile Grade with 75 cars of coal and a couple of helpers. It is the sleek, gray, streamlined Twentieth Century sliding through the morning mists on the Hudson River. It is Proviso, world's largest freight yard, with seemingly endless streams of cars. It is action, variety and romance."--Boomer Pete, in "How to Run a Model Railroad."

Volume 5, Number 4

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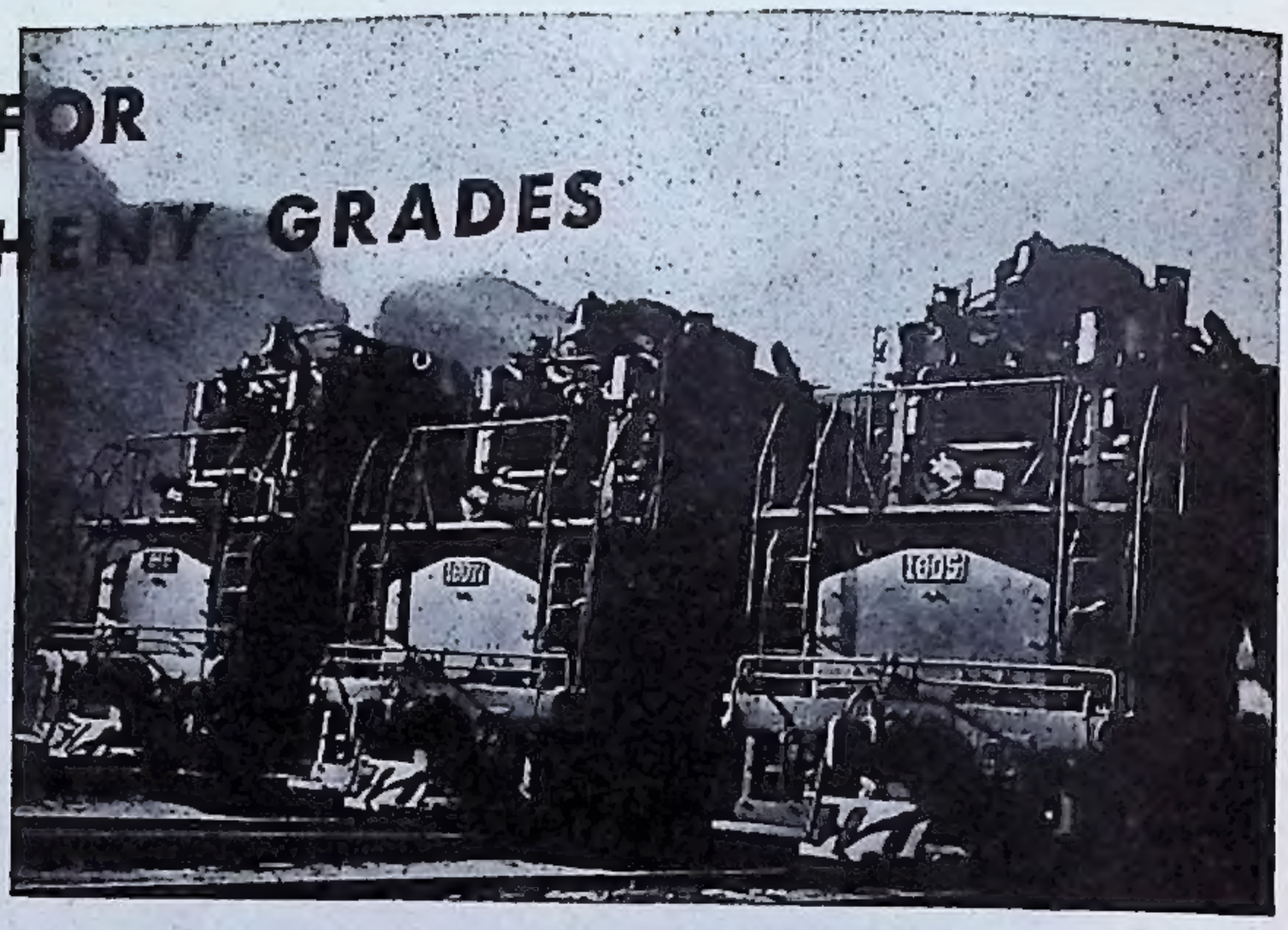
READY FOR THE ALLEGHENY GRADES



Over the Alleghenies, the C&O lines reach 2,072 feet above sea level and there are grades in excess of 1.14 per cent.

To handle its heavy freight traffic in this mountainous terrain, the C&O employs forty-five of these giant, four-cylinder, six-coupled, articulated steam locomotives, built by Lima.

LIMA LOCOMOTIVE WORKS INCORPORATED

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1,239,970 Miles

BETWEEN FIRST AND SECOND SHOPPING PERIODS

That's Availability

A striking example of the ability of Timken Bearings to keep 'em rolling is afforded by Burlington Diesel locomotives Numbers 9906 and 9907 in service on the Denver Zephyr (Denver-Chicago).

These locomotives were placed in service in October, 1936. Before their first shopping period they rolled up 792,839 miles and 690,212 miles respectively. Between their first and second shopping periods they operated respectively 1,084,101 miles and 1,239,970 miles.

All journals of both locomotives are equipped with Timken Roller Bearings. The first Zephyr streamlined train went into service on Timken Bearings in 1930. The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN

TRADE MARK REG. U.S. PAT. OFF.

RAILWAY ROLLER BEARINGS

Through Service, Coast to Coast?

The January issue of *American Business* carries two articles side by side which are worth reading even if you have to hunt the magazine down in the library. One is by the editor of the magazine, and is strongly critical of the Chesapeake & Ohio-Nickel Plate advertisements offering to join with other roads to provide through passenger service coast to coast. The other is a reply by Robert Young, chairman of the C&O.

The C&O advertisement, which ran in national magazines and newspapers from coast to coast, was certainly one of the grandest publicity strokes ever achieved. But it has been questioned no end by practical railroad passenger men. Without question the multiplicity of routes both east and west of Chicago makes the operation of through trains coast to coast a much more complicated project than it appears to the casual observer. To serve intermediate points it would be almost necessary to have through cars from Pennsylvania, New York Central and B&O to each of Union Pacific, Santa Fe, Rock Island, Burlington, and one of the northwest routes, Milwaukee, Great Northern or Northern Pacific.

American Business very forthrightly considers practical difficulties such as this, adds on other questions railroad men have been asking about how C&O-Nickel Plate could hope to work out such an ambitious program as coast to coast service, and finally ends up with the $64 question, "Why are two roads, neither of which is a prominent factor in transcontinental traffic, spending a small fortune in promoting the idea?"

The article points out that the coast to coast distance is better than 3000 miles. Nickel Plate has 721 miles of line from Buffalo to St. Louis which could fit into the picture, and a shorter line Buffalo to Chicago. C&O has 599 miles from Washington to Cincinnati. *American Business* says, "Some railroad men flatly assert that the present agitation for through Pullman service coast to coast is no more than waving the bloody shirt to attract attention, build up backing and promote interest in this group's desire to buy the Pullman Company." On the other hand earnestness is lent to the C&O proposal by the recent application of Missouri Pacific to the courts for permission to join with C&O in through sleeping car service via St. Louis.

"Any railroad patron," says *American Business*, "has a right to ask why these roads, if they are managed by progressive, farsighted and successful businessmen, should not attempt to create improvements on a national scale, such as through passenger service coast to coast." In an attempt to answer this question the magazine then looks at Nickel Plate and C&O passenger service today. "There is little evidence," it says, "to show that Nickel Plate has ever before been seriously concerned about passenger traffic. Less than four per cent of its revenue comes from passengers. Whether it has the service facilities, equipment, track capacity to haul high-grade passenger trains to compete with other New York to Chicago trains remains to be seen. Could it be that the Nickel Plate is contemplating a train that would bypass Chicago, leaving the main line at Mortimer, O., thence to Peoria where it could be picked up by the Rock Island?" [A coast-to-coast route via Peoria, but using other roads, is predicted in Edward Hungerford's 1960 version of America's railroads, "Railroad for Tomorrow," which has been attracting tremendous attention among railroad executives and may be inspiration for many changes.]

Looking at C&O, *American Business* goes on to say, "Of C&O's total revenue 2.5 per cent was from passengers in 1940. . . Remember C&O has never shown much interest in anything but coal hauling in the past."

The next objection is, "Actually there is relatively little demand for a through train. Many passengers enjoy the leg stretching interval in Chicago; others have business in the Windy City; still others have friends or sightseeing or shopping to be attended to. The few hardened travelers who are interested only in the quickest trip, and in nothing else, are in the minority, it is believed. . .

"If we assume the Nickel Plate's kind offer to cooperate with other roads is more than a mere attention-getting publicity scheme, we must take into consideration the other roads' interests. Could any Western road, with management in its right mind, engage in a hookup with Nickel Plate-Lackawanna? To do so would be to thumb its corporate nose at the three main sources of business from and to the East. Were any of the Western roads to tie up with Nickel Plate, the other Eastern roads would be forced into competitive measures which would entice the business to the Western roads not involved."

The Chesapeake & Ohio answer is equally interesting and equally forthright. Says Robert Young, who has a well-earned reputation for disregarding tradition in railroad management, "You are correct in questioning the degree of C&O and Nickel Plate interest in passenger business. Under the Van Sweringens it shrank to the irreducible minimum. Wheeling & Lake Erie (also in the group) discontinued all passenger trains. This is not, however, present C&O policy. The war has demonstrated that, given volume, passenger business can be highly profitable, even for a coal road. In these atomic days no source of revenue can be scorned, with Diesels, oil lines, gas lines, airways, waterways and highways increasingly pestersome. A ton of coal can be hauled only once—to its point of consumption — while passengers can be hauled back and forth as many times as they can be induced to travel.

"Attractively merchandised and properly advertised railroad travel can be increased manyfold. A $30 billion industry (more than 100 class 1 railroads) which spends in the aggregate only $6 or $7 million a year in advertising is not making the most of its opportunities. . . Although passenger fares are a small part of railroad revenue, railroad good will is preponderantly a question of passenger

service—not of freight service."

Young goes on to outline C&O's plans for the finest day trains in the world for postwar service and then how plans for equally fine overnight service were stymied by the upset Pullman situation. "Either C&O would have to embark upon the prohibitively uneconomic policy of owning and operating its own new sleeping car equipment or complacently sit back and countenance a sleeping car service at high rates in jittery cars 25 to 40 years of age, while offering a smooth, quiet, ultra-modern day service at low rates. Examination into the cost of sleeping car equipment, assuming C&O was to go forward upon its own, showed that sleeping cars cost three to four times as much per pound as does an automobile."

The Young reply goes on to relate that these considerations led to his decision to attempt to buy the Pullman Company, a move that he took over the objections of his family. He says, "This bid was made with little expectation of success, at great personal expense both in money and energy, *but with certainty of precipitating constructive action.* There are hundreds of Pullman cars on order today that would not have been on order but for our bid."

He adds, "It is not only the Frisco-New York passenger who is outraged in Chicago, but there are also tens of thousands of intermediate travelers, say from Madison to Indianapolis, who wonder why a passenger car can get smoothly through almost any large terminal in the world but cannot get through Chicago."

And to which we add: Maybe now C&O will start running its trains from Cincinnati directly into Chicago instead of stopping at Hammond, Ind., where passengers must change to South Shore, Erie or Monon.

Odds and Ends

The order of Illinois Terminal for four new two-car articulated electric trains has been changed to eight new single unit cars, including three motors, two parlor cars, and three trailer coaches. . . . The Southern is buying stock of the Atlanta & Charlotte Airline Railway, which it has operated under lease since 1881 as a 254-mile double track section of its Washington-Atlanta main line. . . . The Atlanta, Birmingham & Coast lost its identity January 1 when it became the Western Division of the Atlantic Coast Line . . . A new glass-reinforced plastic has been developed that can be used for large parts such as railroad car tops. . . . Canadian National has ordered 10 new baggage and five mail and express cars of streamlined construction.

In its 1946 model coaches the Milwaukee Road is going to eliminate the outer diaphragm between

One of the world's most unusual railroad stations has been discontinued. With the advent of centralized traffic control on the Lucin Cutoff across Great Salt Lake, the Southern Pacific abandoned Midlake Station, which for 41 years had handled train orders at the siding in the middle of the lake. The station building and adjacent section houses were built on piling as is the ballast deck trestle which carries mainline Overland Route trains across the lake to save 44.8 miles of line, 3919 degrees of curvature and 1515 feet of rise and fall. Section houses were removed as a fire prevention measure to a new location on the lake's east shore. At one time the population of the town reached 30. The town's "Main Street" was the track.

cars, a part added during the streamlining craze of the late '30's and which has caused more than its share of maintenance difficulties. . . . The longest railroad bridge in Europe, at Moerdijk, Holland, south of Rotterdam, is now being repaired. The Germans destroyed six spans and damaged three others during their retreat last November. . . . Engineer John Barker of the NYC retired at Buffalo after traveling more than a million miles without getting out of the city. He worked a yard engine since 1902. . . . A group of railfans in Branford, Conn., plan to acquire a portion of the Branford line of the Connecticut Company, soon to be abandoned, and to maintain it as a national electric railway museum. Those interested can contact W. G. Tyler, West Simsbury, Conn.

British railways are cutting schedules and in some cases are speeding the trains faster than prewar. Test runs have been made on the London-Dover boat train with the prospect that when Continental traffic is resumed the time will be 80 minutes for the 78 miles. The route has heavy grades and many curves. . . . Other schedule changes include speeding up the *Flying Scotsman* [October TRAINS] by 50 minutes. . . . The British have restored dining cars on 84 mainline trains and others are coming back gradually. Before the war more than 900 restaurant car services were operated. . . . The Great Western Railway of England celebrated the fiftieth anniversary of non-stop runs of more than 100 miles. Before 1895 all Great Western trains were forced by contract to make a 10-minute refreshment stop at Swindon, but the railway in that year bought up the contract and started fast non-stops to the west of England.

Two-Foot Gauge Runs Again

The Bridgton & Harrison, two-foot gauge railroad from Bridgton into the scenery of Maine, abandoned operations in 1941, but it is now running again 180 miles away, the first railroad ever to be rescued from the scrap heap and bodily transplanted. It is now at South Carver, Mass., near the base of Cape Cod, rendering intramural service on the cranberry bogs of Ellis D. Atwood, and has been dubbed by employees the Cranberry Branch Railroad. Mr. Atwood says they can call it what they wish, but to him it is officially the Bridgton & Saco River, the name under which most of the rolling stock first worked.

Other names historic in Maine two-foot gauge railroading will also be preserved on rolling stock, Kennebec Central, Sandy River & Rangely Lakes, and Wiscasset, Waterville & Farmington. The railroad will pay its way, and will be used for sanding, spraying and harvesting the bogs which cover some 1800 acres. A locomotive, 12 flat cars, four box cars, two cabooses, two coaches, a baggage car, two tank cars, and the world's only two-foot parlor car have already been transplanted, together with machinery and a turntable.

214 New Cars for PRR

The Pennsylvania Railroad will re-equip the *Broadway Limited, Liberty Limited, The General, Spirit of St. Louis, Cincinnati Limited, The Pittsburgher,* and the *Golden Triangle,* and for this purpose is asking bids on 214 new cars including 129 all room sleepers, 21 lounge cars, nine observation-lounge cars, 11 twin-unit dining cars, six single-unit diners, two coach-lounge cars, 21 coaches, and four baggage-dormitory cars. These orders will total about $21 million.

Orders have already been placed for 112 new coaches, now under construction, which will be used to re-equip the *Trail Blazer,* the *Jeffersonian,* and the Pennsylvania's share of the New York-Florida service.

Pere Marquette-C&O Merger

Although the C&O-Nickel Plate merger is off [December TRAINS] the merger of Pere Marquette into the C&O system is going through. Directors of the Pere Marquette on December 5 unanimously approved the stock exchange by which the deal would be effected, and while approval of the stockholders is still needed this will be mere routine since C&O is the controlling stockholder. Integration of the two railroads will create a system of 5260 miles of main line extending from the west shore of Lake Michigan (by car ferry) through the lower Michigan Peninsula, the Ohio Valley, the Alleghenies and to the Atlantic at Newport News, Va.

Georgia May Sell Railroad

To help finance a $28 million state building program and also to get the property back into a position where it will be taxable, the state of Georgia may sell the Western & Atlanta Railroad, which it at present leases to the NC&StL for $45,000 a month. It was over this road, now the main line of the NC&StL between Atlanta and Chatanooga, that the *Texas* and the *General* ran their famous race of Civil War days.

Refrigerator Car Research

The railroad refrigerator car of the future will provide more efficient and dependable transportation of perishables as a result of extensive car tests and research which will be conducted during the next two years by the Association of American Railroads with the cooperation of shippers, the refrigerator car lines, the United States Department of Agriculture and other interested agencies.

C&O to Buy 1000 Sleepers

The Chesapeake & Ohio has invited bids for construction of 1000 modern, lightweight sleeping cars. The invitation to bid has been sent not only to the recognized car builders but to companies which have never before built sleeping car equipment.

Land Grant Repeal

The Boren bill for repeal of the land grant rate provisions has been signed by President Truman and will be effective October 1, 1946. It will eliminate the reduced rates which government traffic has enjoyed ever since land was granted as an inducement to railroad construction in the last century.

The land, for right of way and for sale purposes on each side of the right of way, was nearly worthless before the railroads were built to give access to the American frontiers of the 1870's and 1880's. The railroads made the West accessible and thus built up value for their land which made it saleable, and this sale of excess land did much to make Western roads possible. It was a good deal for the country, the railroads, and the people who colonized the West.

But in accepting the land the railroads agreed to give reduced rates, in many cases as low as half

Costly Choice

One of the postwar projects about to get under way in New York is a "through-way" from one end of the state to the other, a super-road on which wider, longer, heavier trucks can run faster than they can on ordinary highways. The idea at first was to collect tolls from users of this tax-built facility, but Governor Dewey's advisors now tell him, it is reported, that that won't do at all. The beneficiaries of this expensive undertaking don't want it badly enough to pay for the privilege of using it! Some people, faced with that state of affairs, might conclude that the merit of the super-road isn't exactly beyond question after all, but people who think that way apparently seldom reach high public office. The alternative solution of the problem is to give up the idea of collecting tolls, but build the road anyway and let them use it free, and that's the solution that the New York government seems disposed to elect. —*Railway Age.*

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regular rates, on government traffic. In those days not much traffic was subject to the reductions. It was mostly the postoffice which benefited. With recent growth of government activities the volume of land grant reductions has grown to a large percentage of traffic, and has meant either a serious reduction in railroad revenue or higher rates than otherwise necessary for private traffic.

So repeal of the land grant provisions should be welcomed all around. It puts railroad rates on a fair basis to all comers. The lands have been long since paid for, in cold cash, as the result of the accumulation of years of reduced rates granted the government.

Locomotive Notes

The first of the 50 new class T-1 4-4-4-4 steam locomotives of the Pennsylvania was delivered two months ago by Baldwin and the other 49 will be delivered this month and next by Baldwin and the railroad's Altoona Works, which shared the order. . . Three steam switching locomotives of 0-6-0 wheel arrangement have been ordered from Alco by the Aliquippa & Southern, a 12-mile switching road in the Pittsburgh area and owned by Jones & Laughlin Steel Corp. . . Rock Island is receiving 10 new 4-8-4 steam locomotives just completed for it by American Locomotive. . . The Burlington has completely Dieselized its passenger service between Chicago, Omaha and Denver, using 10 new 4000 horsepower locomotives in pool with five prewar Diesels.

Great Northern is getting two new electric locomotives from General Electric for Cascade Tunnel service. These will be the largest single cab locomotives ever built, 100 feet long coupler to coupler and weighing 360 tons, all on drivers. . . . Chicago & North Western has ordered seven 1500 and four 2000 horsepower locomotives from Electro-Motive. . . . General Electric is building 11 electric locomotives for the Sorocabana Railway, Brazil. . . . The Reading has ordered 10 additional class T-1 4-8-4 steam locomotives from its shops. Twenty of this class are already under construction at Reading shops. . . . Western Maryland has ordered 12 Baldwin 4-8-4 steam locomotives for freight service.

The fourth number in a Pennsylvania Railroad classification series has been published by Norman Perrin, 4523 Arabia Ave., Baltimore 14, Md., in cooperation with the R&LHS. It is devoted to PRR light Atlantics, classes E1-5 and E-7, and covers 493 locomotives built from 1899 to 1913. Price 75 cents. . . . The First Canadian Railway Operating Group captured a German condenser type locomotive of latest design and sent it back to Canada where it is now being tested by Canadian National motive power engineers. The condenser is of course the main feature of interest. . . . The Diesel Engine Manufacturers' Association, 1 N. LaSalle St., Chicago 2, has published an illustrated booklet on the history of the Diesel locomotive which will be sent free on request.

GM&O Going All Diesel

The Gulf, Mobile & Ohio has ordered 24 additional Diesel locomotives which, with 26 already in use, will completely Dieselize the system. The new order includes 20 road freight engines, two switchers, and two 2000 horsepower passenger units.

Street Railway Progress

The other day I went to a hearing of the state public service commission on street car service, one of those jolly affairs where each good citizen was trying to get the street cars to stop on his corner but nowhere else between his corner and downtown. After some technical testimony by Earl Plettner, a Transport Co. traffic engineer, the assistant city attorney started to heckle for no good reason, as city attorneys do. He wanted to know if progress had been made on better equipment to reduce the time taken per stop. Mr. Plettner said, "Yes, surely. All along the line there has been improvement in acceleration and deceleration, but the higher the maximum speed the more time is lost in each stop. Back in the days when our company operated horse cars the maximum speed was so low and so little time was lost on a stop that a person had only to run out the front door, wave at the passing horse car, and the driver would stop and pick up the passenger."

At a recess in the hearing I hunted up Mr. Plettner to inquire further into the technical characteristics of horse cars. "What do you know," I asked, "about the acceleration rate of horse cars?"

"That was somewhat before my time," said Mr. Plettner with deliberation, "and the equipment records do not give all the details, but I am told that horse car acceleration did depend more upon oats than upon amperes."

The Warring Railfans

Ah, this is indeed recognition! The New York Herald-Tribune, in an editorial entitled, "The Warring Railfans," tells of the internal feuds which set old-time fan against modernist, still-picture photographer against action-photo enthusiast, and then ends by remarking, "For a job that is no sinecure, commend us to the business of being editor of one of the popular railroad periodicals, *Model Builder*, TRAINS, or *Railroad Magazine*, because compared to, say, a traditional steampower enthusiast and a heretic of Diesel persuasions, the Hatfields and McCoys were as the lion and the lamb of scriptural reference.

A. C. Kalmbach.

Book Reviews

ELECTRIC RAILWAY PICTORIAL, 17 pages, 14" x 10¼", $2. Published by Wilbourne B. Cox and George Krambles, 10230 S. Rhodes Ave., Chicago 28, Ill.

ELECTRIC railroad enthusiasts will appreciate this fine album of pictures on their favorite subject. Compiled and published by two men long active in the electric rail fan field, Wilbourne B. Cox and George Krambles, the book contains the select cream of interurban pictures. Most of the views are scenes that reflect the real days of the interurban, which are rarely seen today. One notable picture of the Fort Wayne, Van Wert & Lima Traction Company, taken before the days of the automobile, captures the spirit of the old-time interurban running through a Midwestern city. Another rare picture shows the interior of the old train shed on the Key System Pier, where this line once connected with ferries to San Francisco. There are 16 illustrations in all, every one full page size with caption, and printed on the same quality paper as the popular TRAINS albums of railroad photographs.—*L. H. W.*

1851 AMERICAN RAILWAY GUIDE AND POCKET COMPANION FOR THE UNITED STATES, 160 pages, 3¾" x 5¼", $1. Published by the Kalmbach Publishing Co., Milwaukee 3, Wis.

NINETY-FIVE years ago the Erie Railroad main line from Jersey City to Dunkirk, N. Y., on Lake Erie, 468 miles, was the longest route operated by a single railroad company. The fare was $8 and it took 20 hours to make the trip, including stops for meals at various stations along the way. To go west from Dunkirk, passengers had to bridge the gap between railroads by traveling on steamers on both Lake Erie and Lake Michigan. To make travel easier, in 1851 the publishers of *Parkers Weekly* printed the "American Railway Guide and Pocket Companion for the United States." The book contained the timetables of over 200 railroad routes and information about canal and river routes, including fares and distances for all. Tremendously interesting advertisements for pills, clothing, pianos, daguerrian artists (photographers), fireproof paint, and medical services filled the back pages. The Kalmbach Publishing Co. has reproduced the original, as well as a folding map of the railroads in 1851, with all the original typographical errors and advertisements included. This book is an enjoyable glimpse into early American history and railroads.—*L. H. W.*

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WOODBURY HEIGHTS • NEW JERSEY

Main Street of

Northern Pacific now carries a heavy traffic over the territory it once helped to settle

BY HENRY D. RENNWALD

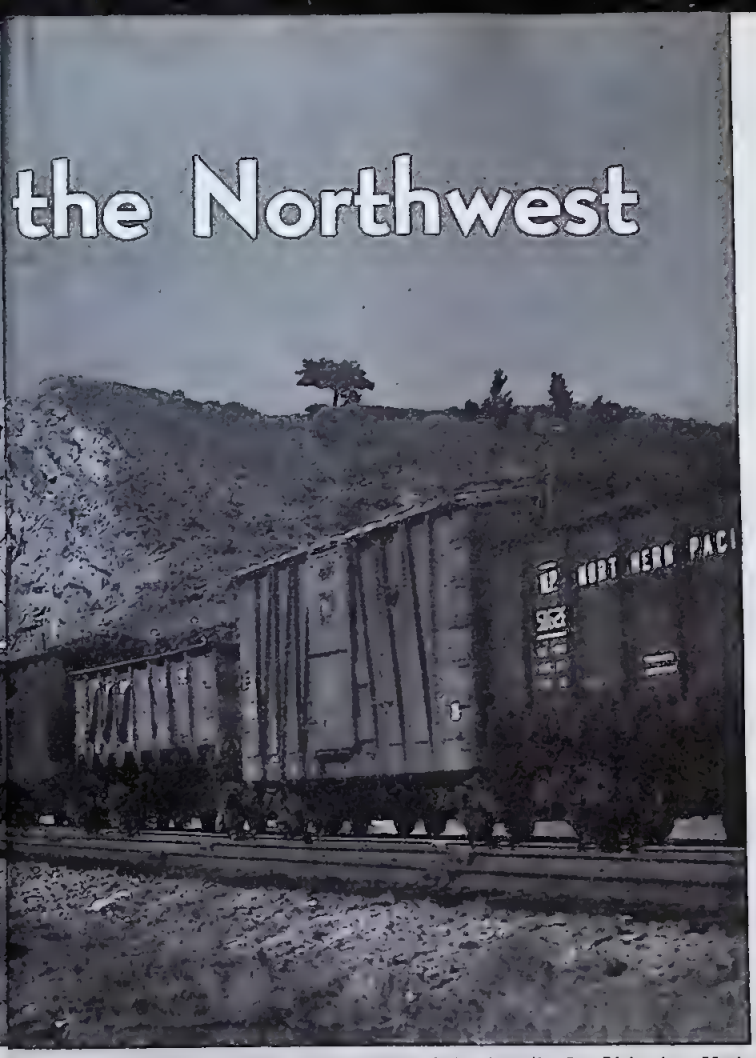
In St. Paul Union Station stands the *North Coast Limited* of the Northern Pacific. The dark green cars, mail, baggage and express, coaches, diner, tourist and standard sleepers, are headed by one of the tall, lanky 4-8-4 locomotives which earned for this wheel arrangement the class name of Northern. Curiously, the train is headed east to go west, for that is the arrangement of the trackage it uses to go between St. Paul and Minneapolis.

Let's get on. As passengers on the all-steam trip from St. Paul to Seattle, we'll move westward across the flat lands of the Dakotas and Eastern Montana, across the Rocky Mountains, through fertile valleys in Idaho and Washington, climb over the Cascade Mountains, and drop abruptly into the trans-Pacific shipping port of Seattle. Our train will follow rivers most of the way and we will see 28 mountain ranges. In less than 48 hours we'll cover 1904 miles of the road's 6833.96 miles of line, riding in the de luxe chair car instead of a sleeper so we can be awake at the important points along the line.

The *North Coast* has arrived from Chicago as Burlington train No. 1. After routine inspection of the train and testing of the air, the engineer on the 2670 opens the throttle and No. 1 slips out of the station at 8:35, the First National Bank tower sharp against the sky in the background and the Milwaukee's *Hiawatha* clattering over the station's throat in the foreground. The same locomotive will head our train all the way to Livingston, Mont., 1008 miles from St. Paul. Before we know it we have passed the industrial districts of the Twin Cities and the flour mills, and the train eases into Minneapolis Station. When we start out again at 9:10, the long westward run is begun in earnest.

At Anoka we pass a sign that tells of Father Hennepin's visit in 1880. He was the French explorer who named St. Anthony Falls, present site of Minneapolis, on his search for the source of the Missouri River. We see the Minnesota State Reformatory, the U. S. Veteran's Hospital, and Minnesota State Teacher's College as we go through St. Cloud. At Gregory the track becomes single iron that continues into Little Falls, where two branches come in on the main line. One extends 87 miles southeast into Morris; the other goes up to Brainerd, Bemidji, and International Falls at the Canadian border.

The line becomes double track again at Philbrook, just east of Staples. We make our first stop since Minneapolis at Staples to change engine crews. This town, formerly a district terminal, has a large machine shop, roundhouse, and big freight yards. The line that comes in here from Duluth is part of the original line built in



E. R. Augustin Jr., Livingston, Mont.

Here is a westbound Northern Pacific freight train at the halfway point on the Main Street of the Northwest, just a few miles west of Livingston, Mont. A helper engine is on the other end, for the freight is climbing up to Bozeman Pass, elevation 6000 feet. A new Bozeman tunnel was finished in 1945.

1871. We leave Staples past the largest stockyards and pens on the system.

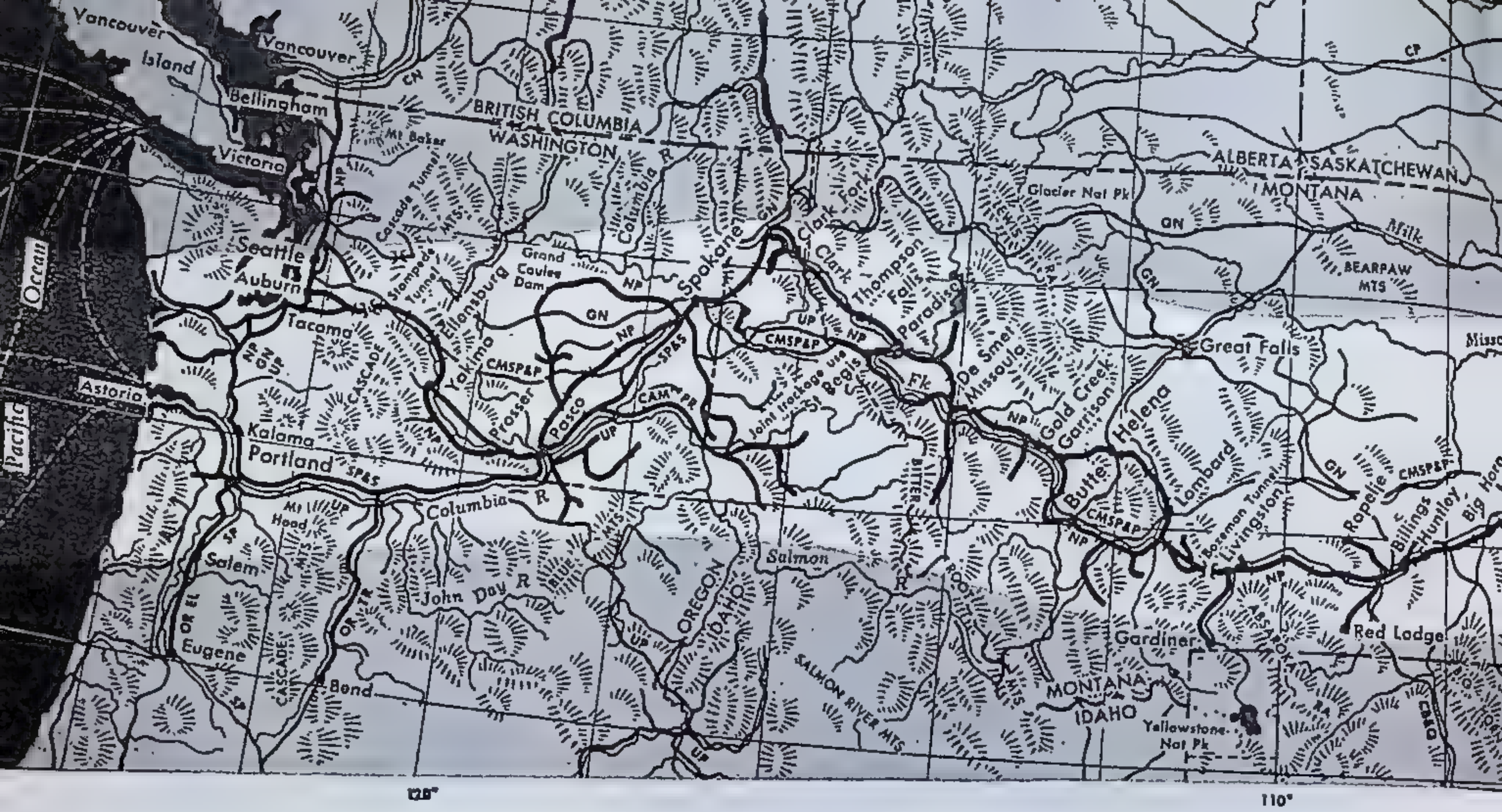
The train moves through level country in this section, which follows the Leaf River Valley to the north of the tracks. At Milepost 181 we cross the lateral divide. West and north of this point, waters from rivers and streams flow into the Red River of the North, which in turn flows into Hudson Bay. All waters east of the divide flow southward into the Mississippi River.

Near Frazee the Northern Pacific line runs between two lakes—Christensen Lake on the north side of the tracks and Herald Lake on the south. Soon we are skirting the shores of Detroit Lake, a popular summer resort. Here the Northern Pacific harvests ice for use on its trains. The branch to Winnipeg leaves the main line at Manitoba Junction, where we see train 124 in the passing track on its way from Fargo, N. D., to Winnipeg. An icehouse and platforms for icing refrigerator cars are along the track at Dilworth. After a brief stop at Moorhead, we leave Minnesota over the Red River and enter Fargo. Named for William G. Fargo, a founder of the Wells-Fargo Express Co., this is in the center of the Red River Valley. Engine and train crews change here.

Broad fields of wheat are on all sides of us and the wheat country continues on the run through Buffalo, where the double track ends for practically all of the remaining trip. Now we come to Jamestown, an important Northern Pacific point because of the large company stockyards and roundhouse here. Dairy country surrounds Jamestown, with fine herds of cattle grazing in the fields. Another engine crew takes over here, but the 2670 is still heading our train.

About now we are getting hungry. We go back to the diner and order the Northern Pacific specialty, the "big baked potato." Before the war each potato was almost a meal in itself, for it weighed between a pound and a half and two pounds. Now, however, the menu lists "NP baked potato on half shell" with a footnote informing patrons that the railroad has to conserve food supplies. But it's still plenty big. We eat our baked potato and other very good food, and then look out again on the prairie country. (Note: We will have approximately five more meals on this trip and will take frequent naps, but the reader is asked to insert these as he needs them.)

As the train nears Dickinson, we see beef cattle along with the wheat fields. The altitude at Dickinson is 2430 feet—a rise of only 1576 feet in the 561 miles we have come from Minneapolis. And now we are entering the Bad Lands region which starts with Fryburg. Vegetation is sparse here, and it reminds one of the desert



country of the Southwest. Petrified stumps and logs are on both sides of the track. In Medora, in the center of the Bad Lands, Teddy Roosevelt once had a ranch. The track swings into the Golden Valley at Wilbaux, Mont.

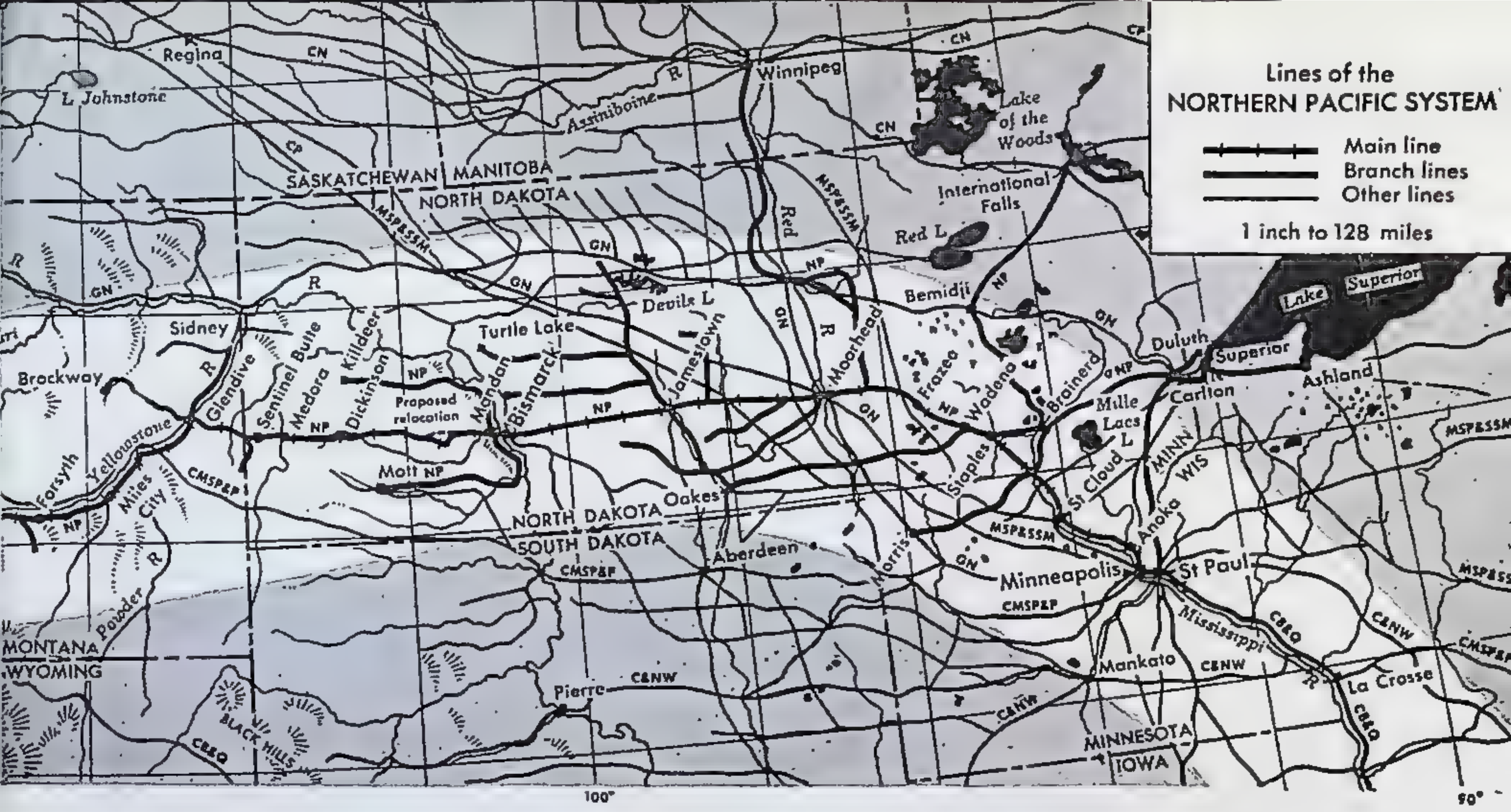
As we come into Glendive we pass a Northern Pacific Beneficial Association Hospital. Engine and train crews change again at Glendive, headquarters of the Yellowstone Division. Here we meet the Yellowstone River, which our train will follow for 341 miles.

Now the *North Coast Limited* is rolling through the Yellowstone Valley, a level country with few rises and dips in the track. We stop briefly at Miles City, site of the U. S. range livestock experimental station on the opposite side of the river. Thirty-four miles south of Forsyth the railroad operates a new coal mine of vast resources. The Cheyenne Indian reservation is also near Forsyth, where we stop to change engine crews. Early in the next morning we pass Big Horn, site of another Indian battle in 1873. Its population now is around 20. Just west of the station our train crosses Big Horn River.

The line of the Burlington Route from Alliance joins us at Huntley, and the road is double tracked into Billings, one of the largest cities in Montana. This is a most important point, with large freight classification yards and a big roundhouse. No. 1 gets a new engine crew here. Sixteen miles west of Billings we come to the large repair shops at Laurel, where the double tracked section from Huntley ends. A line branches south of here to the new Red Lodge entrance to Yellowstone Park.

Now we see the snow covered Crazy Mountains, first range of the Rockies, on the approach to Columbus. Twelve miles west of Columbus, stamping grounds of Kit Carson, we cross the Yellowstone River. Now our grade is noticeable; the altitude at Columbus is 3624 feet. However, the 2670 takes it in stride without any helper engine. The stretches of straight track that we traveled in the Dakotas and eastern Montana give way to long, sweeping curves as we come into the foothills of the Rockies. We have followed the Yellowstone River continuously and crossed back and forth over it on trestles. Now we cross it for the last time and swing into Livingston at 7:40 a.m. The three mountain peaks we see southeast of the station are Mt. Livingston, Mt. Cowen, and Emigrant Peak. Livingston is the diverging point to Gardiner, northern entrance to Yellowstone. We walk up to the head end to see the 2670 cut off after her splendid haul from the Twin Cities. Two engines couple onto No. 1 now, an A-3 numbered 2665, and a class W 2-8-2 helper, No. 1624. The temperature has fallen a bit and the air is crisp. A few flakes are falling as the conductor rounds us up for the hike back to our coach seats.

At 7:50 the locomotives pull out of town past the roundhouse and repair shops. The exhausts come short and snappy, with both engineers working them "down in the corner" for the run over Bozeman Mountain. From Livingston to Hoppers, eight miles west, the climb is 691 feet to an elevation of 5201 feet—almost a mile above sea level. The two engines pound away, snaking around curves with the wheel flanges



Northern Pacific stretches from the Lakes at Duluth and the Mississippi at St. Paul to Puget Sound at Seattle and Tacoma and to the port of Portland on the Columbia, its main line generally south of the Great Northern and north of the Milwaukee.

screaming and screeching as they bite into the top of the rail heads on the sharper curves. Four miles west of Hoppers at Muir, we enter the 3654-foot Bozeman tunnel at an elevation of 5592 feet.

We come out of the tunnel into a fairly heavy snowfall, but the train descends easily into West End, where 1264 is cut off. Then No. 2665 drops us smoothly down the west side of the hill into Bozeman. This is the oldest town on the Northern Pacific route through Montana, as well as the home of Calamity Jane.

The Gallatin Valley is beautiful country. Mountains are visible on both sides as the train runs along the Gallatin River. Tall blue spruce and pine trees stand close to the right of way. Two lines diverge at Logan—the original main line through Helena across the Continental Divide to Garrison, and the new line via Mullan Tunnel to Garrison through Butte, which our train will follow. Extra 5130 east, with a giant Yellowstone type engine, is standing on the passing track at Logan. The extra has 75 cars, including 25 reefers loaded with apples from Yakima Valley in Washington.

The Gallatin, Madison and Jefferson Rivers unite at Three Forks to form the Missouri River. In its odd course the Missouri starts out going northeast, then turns east into North Dakota where it curves southeast, then south and again southeast until it joins the Mississippi River 2547 miles from Three Forks. Lewis and Clark camped here on their search for a route to the Pacific in 1805. Their Indian guide, Sacagewea, recognized this as the place of her capture by hostile Indians. When we leave Three Forks, the snow has become only a few scattered flakes.

We stop at Whitehall to pick up another helper, a class W-3 2-8-2, No. 1726. This helper will take us over the highest point on the railroad, the Continental Divide at Homestake Pass, which is 6356 feet above sea level. Here the watershed divides; all waters to the east flow toward the Atlantic Ocean, and those to the west go toward the Pacific. We climb almost 2000 feet in the 23 miles from Whitehall to the top of the pass. Up here the curves at times seem as short as street car turns. The 1726 cuts off at Highview after taking us over the heaviest grade on the line, and our train winds cautiously down the western slope of the Divide into Butte. This mining center has 2700 miles of tunnels and is the location of the Montana School of Mines.

After Butte the *Limited* drops down an easy grade, on which it makes good time around curves and roars through one canyon after another along Silver Bow Creek. We see the overhead wire above Milwaukee Road tracks parallel to ours. The line from Helena joins ours at Garrison, and our route is double tracked once more.

From Garrison west, the tracks are in Hell Gate Canyon, still parallel to the Milwaukee

Road on the opposite side of Hell Gate River. Between Mileposts 53 and 54 in the Hell Gate Canyon, a sign marks the place near Cold Creek where the last spike on construction of the NP was driven in 1883.

We come into Missoula, headquarters of the Rocky Mountain Division, at 2:50 p.m. Here the 2665 is cut off and another double header attached to the *North Coast Limited.* No. 2607, a class A engine, is our road engine; the 1536, a class W helper, will help us on the climb of 748 feet in 17 miles over the hump to Evaro. Seven miles west of Missoula we enter De Smet, where the Marent Trestle spans a gulch at a height of 225 feet. A low-grade freight line leaves the main here and rejoins it at Paradise. It is on this freight route that the Northern Pacific and the Milwaukee Road share 18.5 miles of track between St. Regis and Haugan to cut down maintenance costs, so that Northern Pacific freight engines are seen belching smoke over the electric wire of the Milwaukee. The double track from Garrison ends at De Smet.

No. 1 cuts off the helper at Evaro and drifts through Arlee, foot of the big grade down the mountains from Missoula. At Paradise, where the freight line rejoins the main, we change our watches from Mountain to Pacific time. Our train continues through the gorges and canyons, winding back and forth across streams. We enter the northern tip of Idaho for a short stretch at Cabinet, and soon after the track crosses Lake Pend Oreille on a mile-long viaduct into Sandpoint.

After we cross the Spokane River, we roll to a smooth stop at Spokane, Wash., headquarters of the Idaho Division. This is the first city with a population of over 40,000 on the entire trip west from Minneapolis. The last engine change is made, and we start out with a class A 4-8-4. The *North Coast* arrives at Pasco three hours after leaving Spokane. Here the cars for Portland are turned over to the Spokane, Portland & Seattle for the run along the Columbia River to Portland. This line is jointly owned by the Northern Pacific and the Great Northern Railroads. A new engine crew climbs on our train at Pasco before we roll out across the Columbia River, which Northern Pacific trains used to cross on a ferry until the bridge was completed in 1888.

At Prosser we enter one of the most productive fruit territories in the country, Yakima Valley, exceptionally famous for its apples. This valley soon gives way to the Kittitas Valley at Ellensburg. No. 1789, a W-3, is picked up at Easton to boost us over the steep grade and through Stampede Tunnel. The rise here is 657 feet in eight miles. After we pass through the 9844-foot bore, our train leaves the helper and drops down the western slope of the Cascades into the Snoqualmie National Forest. We follow the Green River, which we cross 11 times on the way to Auburn. This 100-mile stretch from Yakima to Auburn is perhaps the most beautiful on the route, for we pass irrigated orchards against a background of mountain peaks and dark spruce, fir, and pine trees.

The line divides at Auburn, north into Seattle and south into Tacoma and Portland over the jointly owned track. Our route takes us through the White River Valley, well known for its raspberries and other garden products. At 8:05 a.m. on the second morning out from St. Paul we come to an effortless stop in the Seattle station. We have reached the western terminus of the "Main Street of the Northwest."

Now that we have seen for ourselves the resource-rich Northwest, we can appreciate the important service this railroad renders besides taking passengers over its scenic line. In 1944 the Northern Pacific handled 8,110,939 tons of forest products, 7,671,298 tons of manufactures and miscellaneous freight, 6,671,339 tons in agricultural products, 6,614,459 tons in products of mines, 771,057 tons of animals and products, and 248,128 tons in l. c. l. freight merchandise. These products are collected at important cities. cities the Northern Pacific helped to build, and are distributed to other centers. Back in 1870 when financier Jay Cooke was publicizing the first Northwest transcontinental railroad, Northern Pacific recognized the possibilities of this territory, then laughingly referred to as "Jay Cooke's banana belt." In its early days the railroad hauled buffalo skins and bleached buffalo bones for sugar refining, as well as timber from Idaho and Washington and gold dust from Montana mines. But first it brought the settlers.

On a May day in 1883 a Northern Pacific freight train switched an emigrant car to a siding in the Curlew Valley of western North Dakota. When the train pulled away, the new settlers from Cleveland strayed off in all directions to appraise the country. Not a house, not a shack, not even a fence post was visible as far as the eye could see. The emigrant car was their home until another freight train stopped

Courtesy Northern Pacific.

Every morning just before nine the North Coast Limited is seen midway between St. Paul and Minneapolis.

at the spot to unload utensils, livestock, tents, and baggage. The tents were pitched, the livestock was turned out to graze on the buffalo grass under the watchful eyes of herders, and settlement of the village of Glen Ullin began. Later trains brought farm machinery, lumber, seed grains, poultry, foodstuffs, and more livestock, but the settlers also hunted antelope and deer to supply themselves with meat. The railroad performed the additional service of hauling lumber for church buildings and donated a caboose for church services until the churches were completed. Farms sprang up all around the site as settlers continued to arrive. The pattern of Glen Ullin was one to be repeated many times throughout the territory served by the new railroad.

When the road began transcontinental operations in 1883, only Minnesota and Oregon had sufficient population to function as states; the rest of the Northwest region was territorial land. Six years after the last spike was driven, the entire tier of these territories had achieved statehood. North and South Dakota came in on November 2, 1889, followed six days later by Montana and then Oregon. When Idaho became a state in the summer of 1890, the entire Northwest territory was part of the union. Undoubtedly the Northern Pacific stimulated the influx of settlers.

The railroad began promoting tours to the Alaska territory in 1887, 21 years after the purchase. When a new gold fever swept the country with the Klondike gold strike in 1897, the railroad joined with the city of Seattle to promote the gold country. Seattle published a Klondike edition of its *Post-Intelligencer,* announcing Seattle's facilities for outfitting the prospective prospector. Both the Northern Pacific and the Great Northern railroads distributed this edition, and the bulk of the Alaska trade was permanently secured for the port. Until 1942 the Northern Pacific turned over hundreds of Alaska passengers to steamers at Seattle each summer.

The Northern Pacific also inaugurated passenger service to Yellowstone Park and was the only railroad serving it until 1907. In 1883 the railroad laid a 51-mile branch line from Living-

Linn H. Westcott.

Gold and silver mines supply the freight for Northern Pacific's Wallace branch, which takes off at St. Regis from the low-grade line between De Smet and Paradise, Mont. Above is the start of 18.5 miles from St. Regis to Haugan on which NP and the Milwaukee Road share tracks to cut down maintenance expenses. No. 1781 has just crossed Clark Fork Bridge on NP's main line to Missoula; the connecting track with Milwaukee Road line is at right. Below, No. 4, the Alaskan, crosses beneath Milwaukee Road's overpass near Lombard, Mont. No. 2240, a class Q-5 4-6-2, is heading the Alaskan.

W. R. McGee.

Courtesy Northern Pacific.

Entering the yards at Paradise, Mont., an eastbound freight tosses smoke over its shoulder. The trademark on the tender is not Northern Pacific's, however, for this dual purpose locomotive normally works on the Spokane, Portland & Seattle, jointly owned by the Northern Pacific and Great Northern railroads. It is unusual to find an SP&S locomotive as far east as Montana. Below, engines 1529 and 2607 are pulling a chain of NP passenger coaches up Evaro Mountain in Montana. The country looks like gently rolling hills, but actually considerable elevations are reached in crossing the summits.

R. V. Nixon.

ston, Mont., to Cinnabar at the northern boundary of the park. In that year approximately 100 visitors arrived daily to visit the scenic wonderland. The branch was extended in 1908 three miles to Gardiner, present northern entrance, and eventually the Northern Pacific incorporated "The Yellowstone Park Line" in its trademark. In recent years as many as 10,000 persons a day entered Yellowstone Park, made famous by the railroad publicity. Northern Pacific provided a new gateway at Red Lodge, Mont., in 1937.

Northern Pacific history really begins with the famous explorers Lewis and Clark, for the present route follows much of their course. Secretary of War Jefferson Davis ordered the first survey of the line in 1853, and a surveying party headed by Governor Isaac Stevens of Washington territory journeyed westward from St. Paul through perilous, unsettled country. Lt. John Mullen and Capt. George B. McClellan, later prominent in the Civil War, were members of the party, and Mullen's route across the Big Belt Mountains to the site of Helena was followed by the Northern Pacific engineers. In 1864 President Abraham Lincoln signed the charter that created the Northern Pacific. It called for the building of a railroad from Lake Superior to Puget Sound, but this was not completely fulfilled until 1908.

Albert Farrow, 138 S. 10th St., Auburn, Wash.

Rotary plow No. 10 pushes down the Cascades near Martin, Wash., ahead of Northern Pacific locomotive No. 1682. The train is passing the eastern tell tale out of Stampede Tunnel on a short stretch of double track. Right, section crews are relaying rails to connect approaching tracks with the new Bozeman Tunnel on the opening day last July. Second section of the westbound North Coast Limited, last train through the old tunnel at left, had just passed.

Among the incorporators were General U. S. Grant and Jay Cooke, head of a Philadelphia banking house. Cooke had spent some time reorganizing the abandoned Pennsylvania railroads and canals, but was best known as the man who had sold the government bonds that paid for the Civil War. A clever salesman with unusual resources, he contracted to sell $100,000,000 of Northern Pacific bonds at 7⅗ per cent interest. This high rate made possible the statement that a $50 NP bond would bring its holder a return of one cent a day.

When the war in Europe made it impossible for Cooke to sell his bonds abroad as he had planned, he fell back on the small investors in this country. He persuaded prominent persons, including the vice-president of the United States, to endorse the project and saw that these opinions reached all newspapers in the Northern states. He distributed in one pamphlet the arguments of congressmen who had opposed the grant of land because of its fertility and future real estate value. When a settler found 52 varieties of flowers blooming outdoors in Tacoma early in December, the flowers went to Horace Greeley and the public read about them. Cooke's publicity stated that the bunch grass covering much of the land grant, which was a combination of timothy and oats, was superior to all other grass in the world. The bonds sold, and construction began in June, 1870, at a point now named Carlton, Minn., 20 miles west of Duluth.

Six months later, construction of another line from Kalama north to Tacoma, Wash., began. Much of the equipment and material for this isolated section of the line was carried from At-

lantic sea ports by boat around Cape Horn. Northern Pacific purchased its first locomotive, the *Minnetonka,* in July of 1870 to use in construction west from Carlton. It was shipped then to San Francisco via the Union Pacific and from there by boat to Kalama, where it served on the Kalama-Tacoma project.

The line from Carlton reached Brainerd, Minn., in March of 1871. By December trains ran from Duluth as far as Moorhead, operating over Lake Superior & Mississippi Railroad rails between Duluth and Carlton. Work progressed steadily, and a bridge spanned the Red River in June, 1842. The road moved on to Fargo, N. D., reaching the Missouri River at Bismarck in the following June.

Now, however, the Northern Pacific began having difficulties. A financial crash wiped out Jay Cooke and his firm, along with many other financial institutions. Caught by the panic, the construction workers on the Kalama-Tacoma project struck for back pay and refused to allow trains to go over the track. Capt. Ainsworth, who was in charge of the Western Division, finally paid part of the wages himself and gave the men due bills on a store for the rest. They carried the rails into Tacoma on Dec. 16, 1873, just 24 hours before the charter for that section expired.

Another source of trouble was the Indians, who had resented the coming of the Iron Horse. Chief Black Moon and 1000 warriors attacked Northern Pacific surveyors at Pryor's Creek, Mont., in 1871. Another attack occurred on the west bank of the Missouri River near the present site of Mandan, N. D. The final Indian uprising was the tragic battle of the Little Big Horn in 1876, when the Sioux tribe, led by Sitting Bull and Red Cloud, gathered 20,000 warriors and wiped out General Custer and his men. Although Custer and his band perished, this battle and the subsequent campaign resulted in complete subjugation of the Indian tribes.

Construction began again in the winter of 1878 on the line west from Bismarck. A line eastward from Wallulla, Wash., was begun the

Harold McGee, courtesy Northern Pacific.

following autumn. Now another financier tried his hand at finishing the Northern Pacific. He was Henry Villard, a German-born newspaperman who had obtained much German capital for the Western railroads. Villard owned the Oregon Railway & Navigation Co. and did not want his Oregon properties ruined by a Northern Pacific route over the Cascade range to Puget Sound. In an effort to make Portland the Western terminus, he secretly bought Northern Pacific stock and persuaded 50 men to subscribe $8,000,000 to a blind pool, which went for more Northern Pacific stock. Villard formed a holding company, the Oregon & Transcontinental Co., that controlled the Oregon Railway & Navigation Co. and the Northern Pacific. The new company pushed completion of the transcontinental line to Wallulla, Wash., where it connected with the Oregon Railroad & Navigation Co. line into Portland.

The two construction gangs met at Gold Creek, Mont., 54 miles west of Helena, on August 22, 1883. Prominent Americans and representatives of Germany, England, and the Scandinavian countries attended the dedication ceremonies on September 8 of that year. There were cabinet officials, United States senators, congressmen, governors of states, army generals, 25 leading railroad executives, judges, mayors, and 50 journalists. Three of the nation's greatest contemporary editors were there: Joseph Pulitzer of New York, Joseph Medill of Chicago, and Carl Schurz of New York. Flying over the grandstands were flags of America, Germany, and Britain.

Indian chieftains passed the last spike—a gilded one—from hand to hand, each tribesman staring at it solemnly before turning it over to

Linn H. Westcott.

On the short stretch through Idaho, NP trains cross a 4769-foot bridge over an arm of Lake Pend Oreille at Sand Point (below). At right is Silver Bow Canyon, Mont., where NP tracks are under those of the Butte, Anaconda & Pacific and parallel to the Milwaukee Road electric main line.

Courtesy Northern Pacific.

Harold McGee, courtesy Northern Pacific.

Northern Pacific shops at Livingston, Mont., stand against the background of Mt. Livingston and Absaroka Range. The large steam locomotive maintenance shop is one of five buildings completed here in 1944. A line to Yellowstone branches here.

his brother. Then Chief Iron Bull of the Crow nation handed it to Henry Villard. To broadcast the driving of the last spike, Western Union had arranged a national hookup, a transcontinental circuit of two direct wires, one attached to the spike and another to the sledge hammer. Each time the hammer contacted the spike, a telegraphic click was recorded in New York, Boston, and Portland. Villard struck the spike five solid blows and former President Grant drove it home into the tie with three final blows. Cannon boomed, cheers arose from the spectators, and 1200 miles away in the eastern terminal of the line at St. Paul, bells pealed out the tidings that the Northern Pacific was completed.

The line was not completed as we saw it on our arm-chair trip, however. Soon after the ceremony, President Villard's complicated financial holdings collapsed; he was declared insolvent and resigned. Revenues had fallen off during his extravagant leadership and grew less when the line no longer freighted materials for construction. The new president, Thomas F. Oakes, determined to operate more economically and also to complete the Cascade line to Tacoma that Villard had not wanted. In July of 1883 a link of the system from Pasco to Tacoma was begun. Another gang started eastward from Cascade Junction, near Tacoma, to meet the line from Pasco. The two forces met in 1887 two miles west of the summit on a switchback line over the Cascade Mountains. This meeting marked the completion of the Northern Pacific to tidewater over its own line. It took an hour and a quarter for a special crew and engine to take five cars over the eight-mile switchback track.

Meanwhile, Nelson Bennett had been at work on the $2,000,000 Stampede Tunnel through this territory. It got its name from a strike on the job, during which the men "stampeded" down the trail. The tunnel was over 9844 feet long, built at an altitude of 2852 feet. The electric lighting plant installed upon completion in 1888 was among the first in the West. This tunnel, with the Cascade line, shortened the distance between Chicago and Seattle by 117 miles. It crosses the Cascades 78 miles east of Seattle, almost due south of the more famous Cascade Tunnel on the Great Northern line.

The Northern Pacific recognized the importance of the St. Paul and Minneapolis area, and

W. R. McGee, 418 N. B, Livingston, Mont.

R. V. Nixon, Livingston, Mont.

R. V. Nixon.

Albert Farrow.

North Coast Limited No. 2 uses three engines on the 2.2 per cent grade ascent into Evaro, Mont., but the third is just around the bend in this shot. The second picture shows extra 1844 east crossing Missoula River near Huson, Mont. Next, No. 4 comes across Green River Bridge east of Auburn, Wash., with a long freight consist. No. 1763 precedes No. 2250 here. At bottom, the North Coast Limited with helper climbs to the Continental Divide at Homestake Pass, highest point on the line. It's a climb of 2000 feet in 23 miles.

soon took steps to serve those cities. It first leased trackage rights from other roads, later purchased and built its own right of way. By 1889 Northern Pacific had its own route direct from St. Paul to Staples, where it met the original route from Carlton. With the completion of this stretch, Brainerd was eliminated as a major point on the route.

In 1887 Henry Villard was called back to handle the finances of the Northern Pacific through a new holding company, the North American Co. He soon predicted another national disaster if the Sherman Silver Act were not repealed. In the panic of 1893 the Northern Pacific, along with 50 other railroads, again went into receivership. Over $30,000,000 had been spent on extensions which were not paying off.

The railroads and the country rallied eventually, and building continued. In 1901 the Northern Pacific obtained control of a substantial portion of the Chicago, Burlington & Quincy so that its trains could now operate directly from Chicago to Puget Sound, almost entirely on Northern Pacific rails. Together this railroad and James J. Hill's Great Northern Railroad acquired approximately 98 per cent of the total capital stock of the Burlington. Northern Pacific reported to its stockholders that year: "The control of the Chicago, Burlington & Quincy Railroad Co. is of great importance to your company, as it gives a vast territory, reached by no other lines so well, in which to distribute the products of your territory tributary to your lines. The lines supplement those of your company, and their control must be of great and growing advantage and result in a material and substantial protection and profit." Today the Northern Pacific and Great Northern own 97.18 per

Extra 5102 east with 83 cars rolls through the famous Gallatin Valley in Montana past the Bridger Mountains; the load weighs 3800 tons. In the second picture, Nos. 1529 and 2152 are pulling 18 cars into the station at Gardiner, Mont., northern entrance to Yellowstone Park. Next, a class Z-6 locomotive called the Cavalry Special, No. 5101, brings a train through Hoppers Tunnel on the way to Bozeman Pass in Montana. At bottom, Northern Pacific 1913 crosses a bridge between Enumclaw and Buckley, Wash., on its way over the "Buckley Line" to Tacoma.

W. R. McGee.

W. R. McGee.

R. V. Nixon.

Albert Farrow

cent of Burlington stock jointly. NP's premier passenger train, the *North Coast Limited,* was placed in service between Chicago and Seattle in 1890, to operate over the Burlington out to Chicago.

The question of the relationship between the Great Northern and the Northern Pacific is a difficult one. James J. Hill and J. P. Morgan formed the Northern Securities Co. in 1901 as a holding company for both roads. Although Hill said it was not meant to be an operating company, the United States Supreme Court dissolved it under the Sherman Anti-trust Act in 1904. At present the companies jointly own the Burlington and the Spokane, Portland & Seattle, which they organized in 1905 and completed in 1908. The Northern Pacific thus acquired a direct line into Portland via Pasco in addition to its main line into Seattle. Northern Pacific and Great Northern attempted another consolidation in 1927, but the Interstate Commerce Commission rejected this plan in 1931 because the roads could not agree to give up the Burlington. They have offices in the same St. Paul building with two outside entrances. Experts believe that by consolidating the two roads and using the best portions of each end on end to create a new super main line, such economies in transportation costs could be achieved as to practically create a second industrial revolution for the Northwest.

Unlike its competitors for the Northwest traffic—the Great Northern and the Milwaukee Road, which at some points on their line use electric engines for motive power—the Northern Pacific until 1943 used only steam locomotives. Now it has 11 5400-horsepower Diesels in service and six 4500-horsepower Diesels on order. These are used in freight hauls. In its annual statement for 1944 the company

W. R. McGee.

"The Yellowstone Park Line" is incorporated in NP's trademark with good reason, for the road opened the park for visitors in 1883. At the left are Nos. 1529 and 2152 with a train at Gardiner, northern entrance. No. 651 ran to Yellowstone Park in 1905. Its spark deflector anticipated the cyclone front end. Below, the old "Butte Stub" 4-4-0 poses in 1902.

listed 878 locomotives in service, 19,236 box cars, 5264 flat cars, 3770 gondolas and other types of equipment to total 38,059 freight cars. Miscellaneous equipment numbers 6961 cars.

The 554 passenger cars of the road include 168 baggage and express cars, 59 mail and express cars, 26 diners, 70 express refrigerator cars, 13 cafe coaches, and 17 combination cars. The company also operates 20 gasoline rail cars, three postal cars, and seven baggage and dormitory cars.

New equipment scheduled for delivery in 1946 comprises 24 sleeping cars of lightweight design, six modern dining cars, 12 baggage and mail cars, six 4500-horsepower Diesel-electric locomotives, and 36 passenger coaches. This equipment will cost over $9,000,000.

In 1944 Northern Pacific's total railway operating revenue was $155,978,-310.04, of which over $120,000,-000 was derived from freight business. Net income after charges and taxes was $13,-160,985.02, which compares favorably with other Class I railroads of comparable size. About two thirds of all freight moved is picked up in Northern Pacific territory.

About one fifth of the main route is double tracked. The two longest stretches of double track are from St. Paul to Gregory, Minn., and from Philbrook, Minn., to Buffalo, N. D. The 187-mile line between Seattle and Portland is double tracked too. Mainline track on all important routes has from 85- to 131-pound rail. The present annual replacement program provides for relaying of the lower weight sections with new rail of 112 and 131 pounds.

Automatic block signal protection covers 2497.67 miles of road, or 3154.82 miles of track. The entire line from St. Paul to Seattle is so protected. From Duluth to St. Paul, Superior to Carlton, Seattle to Portland, and De Smet to Paradise on the alternate freight route via St. Regis, Mont., the protection extends.

The maximum tonnage listed for freight trains gives conclusive proof of the easy grades over the main line. On the westbound run 6000 tons can move between Billings and Livingston, and 6500 from Paradise to Spokane. Both hauls are made without helpers. On the eastbound freight

W. R. McGee.

Courtesy Northern Pacific.

The Minnetonka (left) was NP's first locomotive, bought in 1870. NP rediscovered it in a Washington lumber camp in 1928. Its tender capacity is a half cord of wood and 500 gallons of water. Right, one of four "Last Spike" trains at ceremonies at Gold Creek in 1883. Below are newer engines Nos. 2667, class A-3; 1529, class W; 2232, class Q-5, and 4404, class Z-4.

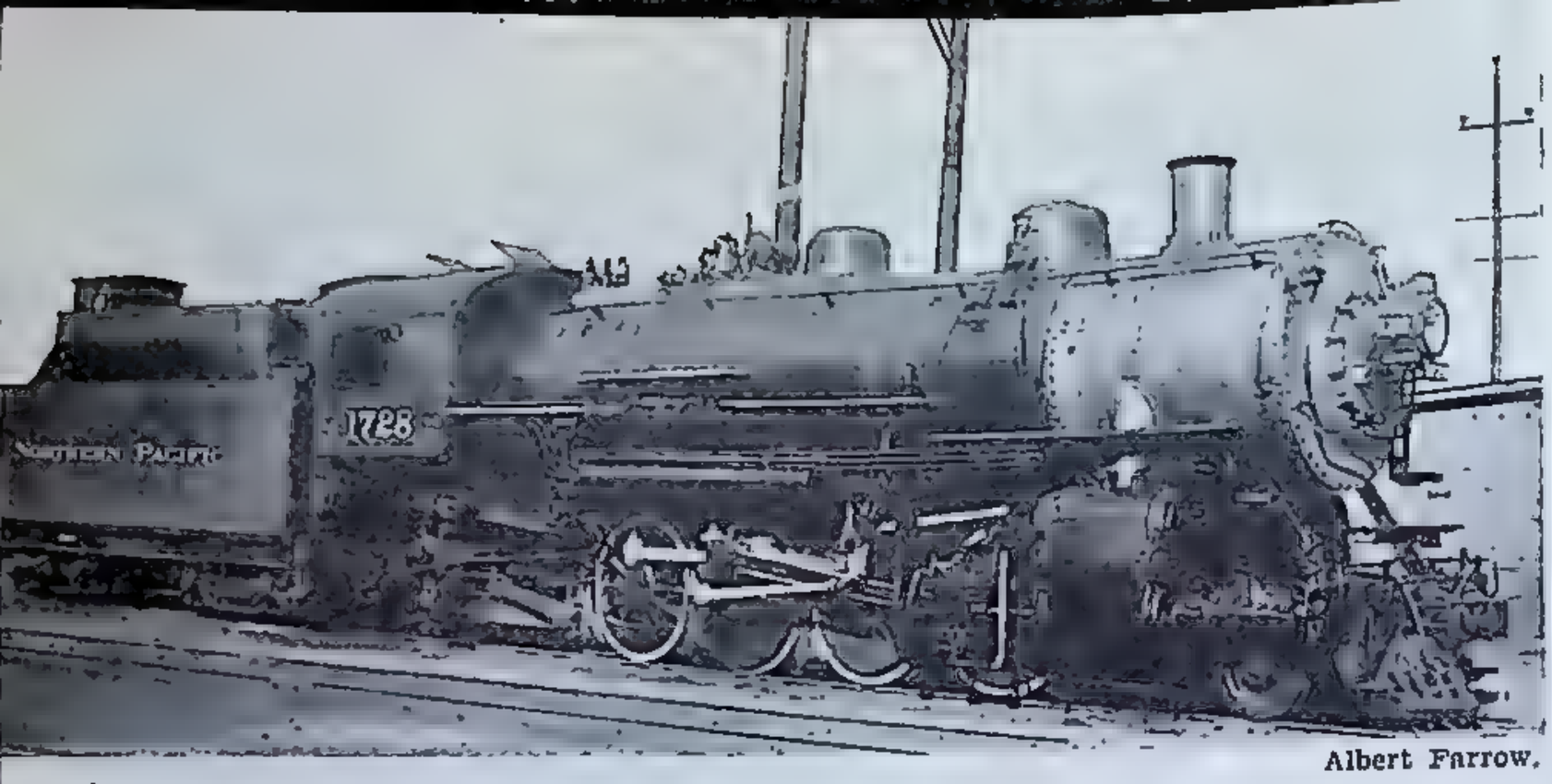
trains one engine can haul the amazing amount of 7000 tons from Spokane to Paradise and 6000 tons from Staples to Northtown (St. Paul). The lowest maximum tonnage on the line is on the trip from Yakima to Auburn, where the rating is 3600 tons with a helper going west and 3750 tons going east. Passenger trains need helpers at five points between St. Paul and Seattle.

The ruling grade on most mainline sections varies from .2 to .5 per cent. On the mountain runs grades vary from 1.4 per cent to 2.2 per cent, which prevails over the east slope approach in the Rocky Mountains west of Helena and east of Butte, and on both slope approaches in the Cascade Mountains between Easton and Lester, Wash. Some short sections on the main line have grades from .8 to 1.1 per cent. The sharpest curve of mainline trackage is about five degrees, except in the mountains where some curves are as sharp as 12 degrees. Freight and passenger trains really can roll over the Northern Pacific.

The line has five important car shops: at St. Paul, Como, and Brainerd, Minn., Laurel, Mont., and South Tacoma, Wash. The locomotive repair shops are at Brainerd, Minn., Livingston, Mont., and South Tacoma, Wash.

Northern Pacific's varied operations are carried on under a unique trademark, a modification of the Chinese symbol for life. The Taoist poets once used it for "man and woman" or "good and evil." Its Chinese source was originally expressive of the railroad builders' desire to reach the Orient, but today the symbol is a reminder of the services the Northern Pacific performs. This railroad, builder of cities and industry, is one of the "lifelines" of the Northwest.

R. V. Nixon.



Albert Farrow.

Oil-burning engines like this W-3 (left) do freight service between Seattle and Portland, which lacks coaling facilities. No. 5123, at the bottom of the opposite page, is a modern class Z-7 4-6-6-4.

At right is one of 11 Northern Pacific 5400-horsepower freight locomotives in service. NP was an all-steam road until 1943 and uses Diesels only for freight.

Northern Pacific Motive Power Roster—Steam Locomotives

No. of Units	Class	Type	Driver diam., in.	Cyl. diam., stroke, in.	Pressure lbs.	Tractive effort, lbs.	Weight lbs.	Builder	Date Built
8	A	4-8-4	73	28x30	240	65,700	739,900	Alco	1926
4	A*	4-8-4	73	28x30	240	65,700	738,400	Alco	1926
1	A-1	4-8-4	73	27x30	250	63,700	718,500	Alco	1930
10	A-2	4-8-4	77	28x31	260	69,800	878,000	Baldwin	1934-5
8	A-3	4-8-4	77	28x31	260	69,800	877,900	Baldwin	1938
8	A-4	4-8-4	77	28x31	260	69,800	945,800	Baldwin	1941
10	A-5	4-8-4	77	28x31	260	69,800	952,000	Baldwin	1943
1	F-1	2-8-0	50	22x28	150	34,560	297,200	Baldwin	1888-91
4	G-1	0-8-0	51	25x28	175	51,000	381,900	Alco	1919
20	G-2	0-8-0	51	25x28	175	51,000	380,000	Alco	1920
2	L-6	0-6-0	51	19x26	180	28,200	210,000	Alco	1901
4	L-7	0-6-0	51	19x26	180	28,200	210,000	Alco-Bald.	1902-3
63	L-9	0-6-0	51	20x26	180	31,200	242,700	Alco-Bald.	1906-10
8	L-9*	0-6-0	51	20x26	180	31,200	242,700	Alco-Bald.	1906-10
10	L-10	0-6-0	51	20x26	180	31,200	240,500	Alco	1912
4	Q	4-6-2	69	22x26	200	31,000	328,400	Alco	1903
21	Q-1	4-6-2	69	22x26	200	31,000	366,900	Alco	1904-7
14	Q-3	4-6-2	69	22x26	200	31,000	377,400	Baldwin	1909
8	Q-3	4-6-2	69	23x26	200	33,900	377,400	Baldwin	1909
3	Q-4	4-6-2	69	22x26	200	31,000	379,000	Baldwin	1909-10
32	Q-4	4-6-2	69	23x26	200	33,900	379,000	Baldwin	1909-10
1	Q-4	4-6-2	69	24½x26	180	34,600	379,000	Baldwin	1910
20	Q-5	4-6-2	73	26x28	200	44,100	523,100	Alco	1920
18	Q-6	4-6-2	73	26x28	200	44,100	523,700	Alco	1923
2	Q-6*	4-6-2	73	26x28	200	44,100	513,600	Alco	1923
39	S-4	4-6-0	63	21x30	200	35,700	297,900	Baldwin	1902
2	S-10	4-6-0	57	19x26	190	26,600	257,000	Alco	1907
2	T	2-6-2	63	21x28	200	33,300	357,000	Alco	1906-7
19	T	2-6-2	63	21½x28	200	35,000	357,000	Alco	1906-7
3	T-1	2-6-2	63	21x28	200	33,300	357,000	Alco	1906-7
14	T-1	2-6-2	63	21½x28	200	35,000	357,000	Alco	1906-7
96	W	2-8-2	63	24x30	200	46,600	418,200	Alco	1904-7
6	W*	2-8-2	63	24x30	200	46,600	418,200	Alco	1904-7
35	W-1	2-8-2	63	25x30	200	50,600	461,400	Alco	1910
16	W-2	2-8-2	63	25x30	200	50,600	462,300	Alco	1904-5
120	W-3	2-8-2	63	28x30	200	63,500	556,400	Alco	1913-20
5	W-3*	2-8-2	63	28x30	200	63,500	556,400	Alco	1913-20
6	W-4	2-8-2	63	28x30	200	43,500	397,500	Alco	1906
25	W-5	2-8-2	63	28x30	200	63,500	553,100	Alco	1923
10	Y	2-8-0	54	20x34	200	42,800	303,000	Schenectady	1898
12	Y-1	2-8-0	54	20x34	200	42,800	286,300	Alco	1900
18	Y-2	2-8-0	63	22x30	200	39,200	314,000	Schenectady	1901
11	Y-3	2-8-0	54	20x34	200	42,800	320,000	Schenectady	1901
20	Z-3	2-8-8-2	57	26&40x30	200	89,500	695,700	Alco	1913-20
4	Z-4	2-8-8-2	57	25&40x30	240	107,300	786,500	Alco	1923
12	Z-5	2-8-8-4	63	26x32	250	145,900	1,125,400	Alco-Bald.	1928-30
21	Z-6	4-6-6-4	69	23x32	250	104,500	1,039,600	Alco	1936-37
6	Z-7	4-6-6-4	70	23x32	260	106,900	1,081,000	Alco	1941
20	Z-8	4-6-6-4	70	23x32	260	106,900	1,081,000	Alco	1943

* These engines burn oil.

General Motors, Electro-Motive Division.

Diesel-Electric Freight Locomotives

No. Units	Horsepower	Type	Wheels diam., in.	Cyl. diam., stroke, in.	Tractive effort, lbs.	Weight lbs.	Builder	Date built
11	5400	0-4-4-4-4-4-4-4-4-4-0	40	64-8½x10	225,500	925,900	Electro-Motive	1944-5

Diesel-Electric Road Switchers

No. Units	Horsepower	Type	Wheels diam., in.	Cyl. diam., stroke, in.	Tractive effort, lbs.	Weight lbs.	Builder	Date built
2	1000	0-4-4-0	40	6-12½x13	60,600	242,500	Alco	1945
2	1000	0-4-4-0	40	6-12½x13	61,900	247,500	Alco	1945

Diesel-Electric Switchers

No. Units	Horsepower	Type	Wheels diam., in.	Cyl. diam., stroke, in.	Tractive effort, lbs.	Weight lbs.	Builder	Date built
3	660	0-4-4-0	40	6-12½x13	49,300	197,500	Alco	1940
1	660	0-4-4-0	40	6-12¾x15½	49,800	199,300	Baldwin	1940
2	660	0-4-4-0	40	6-12¾x15½	49,400	197,800	Baldwin	1942
1	660	0-4-4-0	40	6-12½x13	49,500	198,000	Alco	1945
1	900	0-4-4-0	40	12-8x10	63,100	252,600	Electro-Motive	1938
3	1000	0-4-4-0	40	12-8½x10	61,500	246,000	Electro-Motive	1940
3	1000	0-4-4-0	40	12-8½x10	61,100	244,400	Electro-Motive	1941
2	1000	0-4-4-0	40	8-12¾x15½	59,900	239,600	Baldwin	1941
11	1000	0-4-4-0	40	6-12½x13	57,500	230,000	Alco	1941-2-3
2	1000	0-4-4-0	40	8-12¾x15½	59,200	236,900	Baldwin	1942
4	1000	0-4-4-0	40	8-12¾x15½	60,100	240,500	Baldwin	1944
4	1000	0-4-4-0	40	8-12¾x15½	60,300	241,300	Baldwin	1944
16	1000	0-4-4-0	40	8-12¾x15½	60,600	242,300	Baldwin	1945

R. V. Nixon.

Challenger in Palisade Canyon

The colorful Palis
vada is a dayligh
bound trains of th

Courtesy Southern Pacific.

ade Canyon of the Humboldt River in Central Ne-
nt scene for travelers on both eastbound and west-
e Southern Pacific's San Francisco Challenger. Western Pacific's single track line is on one side of the river, SP on the other, but both are now used jointly as a double track railroad with all trains going west on the SP track and east on the WP track.

Courtesy Caterpillar Tractor Co.

Rio Grande

On the RG's main line over the Wasatch divide near Soldier Summit, Utah, a tractor widens an embankment. Beautiful rock colors distinguish this section of the line.

Railfans' Saturday Night

Spend an hour at the busy Englewood Union Station on Chicago's south side, where trains of four roads keep the tracks busy

BY D. W. YUNGMEYER

The lights on the diagram board in the dimly lit tower shift positions as the second-trick man moves his levers rapidly for a new line-up. The obscure outlines of the tower become distinct when a light from behind suddenly shifts to the right, swiftly contracting from a cone to a solid beam, and in that instant the Iron Monster thunders forth. *(Shades of Lincoln J. Carter! Anyone remember him?)* Sparks fly from the brake shoes as the M-50a, followed by a head-end buffet car, six coaches, a diner, parlor car, parlor-buffet car, another parlor car and two extra coaches, roars across the Pennsylvania tracks and comes to a stop. The rear brakeman drops off with his lanterns and Rock Island No. 10, the *Chicago Limited,* is discharging passengers at Englewood Union Depot. Some train! Making nine stops, it averages just under 49.4 miles per hour for the 358-mile run from Des Moines, Ia., to LaSalle Street Station.

Three minutes earlier, at 8:15 p.m., you watched Pennsylvania Railroad's No. 2, the *Pennsylvania Limited,* K-4s-powered, swing around the curve to the west and, still working steam, smack the three Rock Island tracks at a right snappy clip, its a long string of head-end cars, coaches and two Pullmans coming to a smart stop, just clearing the derail lock. This comfortable old lady still retains some of the dignity of the grande dame of yesteryear, whose

This view from the west shows the general layout of Englewood Union Station. Tracks in foreground are the main line of the Pennsylvania and the train is about to make the station stop before leaving for the East. Tracks at right angle are the Rock Island main line while the New York Central and Nickel Plate use the curved line on the far side.

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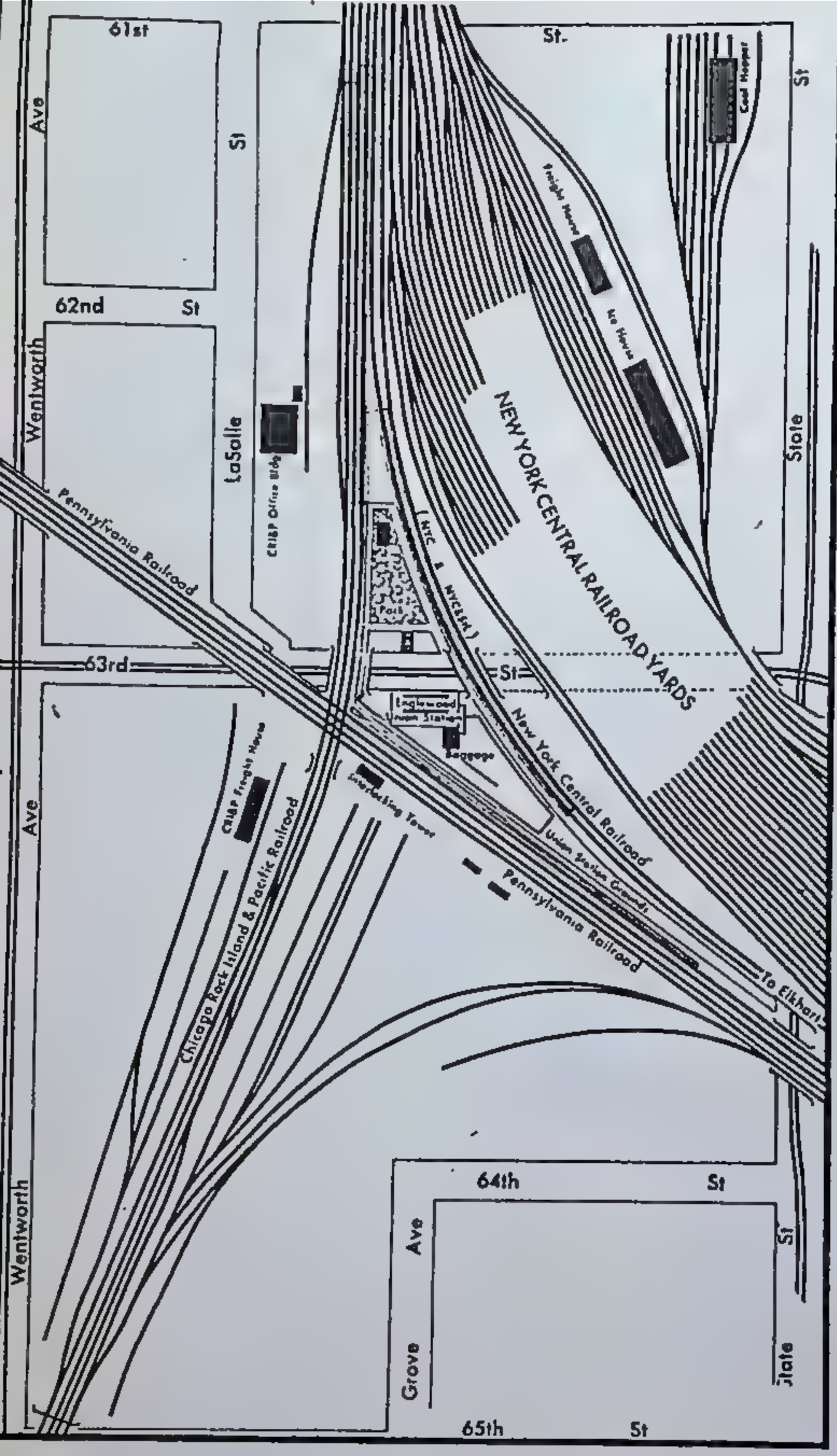


D. W. Yungmeyer, 5116 Dorchester Ave., Chicago, Ill.

garments were fashioned by Pullman and whose prestige was challenged only by the upstart *Broadway*. Nowadays she sometimes appears as twins, in which case the first section, the gravy load of mail and express, runs slightly ahead of schedule, while the second edition, the plush load, runs to time.

You came tonight to Englewood, 6.7 miles south of La Salle Street Station in Chicago, because you knew you would see the passenger-train activities of four railroads: Rock Island, New York Central, Pennsylvania, and Nickel Plate. A little study of their timetables told you that this hour would be pretty busy if everything were on time, and tonight the board says it is. But you forgot that there were other moves through the station, so don't let this easy beginning fool you. If you want to see all the show you'd better be fleet of foot and strong of wind, for they'll be coming at you from all directions, and the platforms are long.

Already the loud speakers are calling New York Central No. 80, the *Maumee*, for 8:24. Far down the track, beneath the endless vista of color-light signals, a pinpoint of light rapidly grows to blinding brilliance, does a left and right swing at 61st Street, and then leans into the long curve which forms the third side of the station. You're going to have company as you hurry down to the east end of the station, for as Rock Island No. 10 cleared the interlocker you saw a headlight underneath the signal bridge at Wentworth Avenue, and from the sound of the exhausts you know there was a whale of a freight train getting under way. You get to the end of the train shed just in time to see the last of the head end business go aboard No. 80, and since the New York Central has not been able to teach its train crews to see around corners, the air

The map shows the track layout at Englewood and makes it obvious why the station itself is such an excellent observation post from which to watch the big parade. At right is the Nickel Plate Limited arriving at Englewood behind one of the NP's neat light Hudsons. The train is made up at Buffalo, but carries a through ladies' lounge coach and through sleeper from New York.

whistle peeps as the engineer gives out with a touch of the booster, a widening of the throttle, and a slight readjustment of the valve gear. The approach-lighted signal changes from green over red to red over red, blinking out as the last car passes, while the 5400 makes a run for a hill up to Grand Crossing.

In the next few minutes anything can happen —and it does. As No. 80 blasts her way up the hill a pair of red markers passes her coming your way at the same time the Pennsy freight train rumbles by, a solid string of low side gondolas, all bearing the keystone of the road. The M-1 has them rolling briskly, the tempo of the exhausts increasing with every turn of the drivers. You don't try to get a count but it's an odds-on bet that there are at least 100 in the train. Turning back to the red markers noted a moment ago you discover from the tail sign that this is the *Nickel Plate Limited* backing down to La Salle Street. You've but a moment to admire the small Hudson when your view is blotted out by a Nickel Plate eight-wheel switcher coming the other way with the loads from the Stock Yards. You see the approach-lighted signal again out of the corner of your eye, this time yellow over green, as you turn to watch a pair of caboose-hops from Colehour roar through the station. The position light signals change quickly from vertical to horizontal and Herman, the towerman, proceeds to "lay some track" in a hurry, for Rock Island No. 23 is due in the station at 8:28.

As you gallop back along the platform you see another M-50a come to a power stop well across the Pennsylvania tracks. A furious burst of speed by the baggagemen while the passengers crowd aboard . . . then the air whistle speaks twice, and the locomotive quite casually leans into the work of

P. Slager, 204 E. LaRue, Streator, Ill.

Courtesy Pennsylvania Railroad

Pennsylvania freight moves through Englewood on the southernmost main tracks. At top is a Mountain type locomotive with an eastbound manifest while in the second picture Mountain type westbound is passing a passenger train pulled by a skylined K-4. The NYC's Twentieth Century, pulled by a Diesel, and the Penney's Trail Blazer, are making the Englewood stop.

D. W. Yungmeyer.

Two of Rock Island's Rockets meet in Englewood. Plate girder bridge in foreground formerly carried a fourth Rock Island track which extended across the Pennsylvania crossing, but which was cut short in order to save wear and tear.

taking the *Colorado Express* into the night. You watch it disappear around the curve to the south: seven head end cars, three coaches, a sleeper, and, carrying the markers, a head end buffet running backward as a club car. About face! Two headlights are coming right on the tail of No. 23. The one on track 4 is a suburban train with one of the ever-present P-31 class engines doing the work, but the other one is a puzzle, until the last car of the "dummy" has cleared. You rock back on your heels as a C-43 comes from track 6 to track 5 with a most unusual drag: a shop transfer bound for Burr Oak from 47th Street, consisting of a dead M-50, a dead C-43, the wheel-car (which is nothing but the chassis of an old locomotive crane) with three pairs of driving wheels aboard, a box car, and, bringing up the rear, a six-wheel switcher, also dead. What a shot for the old shutter-box if this could be seen during the daylight hours!

As the string wheezes past the loudspeakers go to work again calling attention to the imminent arrival of Rock Island No. 43, the *Californian,* at 8:42. A lot of passengers are waiting for this all-coach (except for Kansas City sleeper) train, which is pulled, as you guessed, by another M-50a. This one stops right on the diamonds, seemingly asking your admiration, which it well deserves. You look back along the train as the air whistle "beeps" and estimate the chances of some fireworks, but you are fooled as the engineer, a cautious man, lets the engine sag back gently for a moment before the valve gear goes into forward motion and the long train starts to roll. Watch them go by. A head end car, a dormitory car for the crew, five coaches, a diner, five more coaches, two Pullmans (the Kansas City cars), and a couple of troop-occupied extra tourist cars. By the time the last car clicks over the crossing they are really stepping along, so you think you'll check the time it takes for the markers to disappear, but you don't get to it for you are startled to see a headlight that seems to be tumbling off the right of way at 65th Street. Don't get alarmed. This is the local switching job from Blue Island heading into the Rock Island-Pennsylvania connection. In all the rush, roar and rumble that has been going on you have neglected this connection. Now you look closer and discover that a main train is standing there, waiting for an engine. This curving double track was a vital interchange during the war years and many a soldier and sailor rode over it as his outfit passed from one training area to another, and now-a-days on his way back home.

A hurried glance at your watch tells you that some fast footwork is in order. Look to the

D. W. Yungmeyer.

This New York Central suburban train is leaving Englewood for downtown Chicago where it will pull into the LaSalle Street Station after a 15-minute run. The signal, for eastbound trains pulling into the station, is approach lighted.

southeast. Here come two headlights down the hill, hell-bent for leather. They'll be the *Twilight Limited* and the *Red Bird,* both from Detroit (NYC No. 31 and PRR No. 7), due here at 8:46 and 8:45 respectively. They get in together tonight so you have to do a quick job of deciding where to spot yourself first. You decide to go to the north end of the Rock Island platform to see what the *Twilight* has on the smoky end because there is another dummy due on the Rock at 8:47 which will probably stab the Pennsy. New York Central's J pulls clear up to the block in order to spot its long string of coaches and parlor cars properly at the platform, and, sure enough, here comes a P-33 hauling the mainline suburban tailed by a baggage car, with the crossing lined up for him. Now you know you'll have time to see the *Red Bird,* so you watch No. 31 get going, then turn to see the tail lights of the dummy pass under the signal to the south of the crossing, and dash down to enjoy the show the K-4 puts on for you. The *Red Bird* gets a nice start, but, the engineer is being a little too anxious, the engine loses its feet as it hits the crossing and produces a great show of fireworks. With the head end under control you take a look at the train. The *Red Bird* is normally so arranged that the coach passengers can have the rear observation view, but for a time it ran backward westbound, the result of a wartime restriction which saved switching at Detroit. Behind the engine are the baggage car, a parlor car and the drawing-room-parlor-solarium car for the use of the first class trade. Then comes the diner, followed by six coaches, and, bringing up the rear, a coach observation.

You watch it get away to the west, hoping for a last view of the markers as it passes around the curve, but no dice, for under the signal bridge at Wentworth Avenue are two headlights looking you right in the face. These should be WS-4, merchandise for the east via Fort Wayne, and the yard job which works the ice house at State Street. With a great snorting they come up to the crossing, WS-4 a little in the lead with an M-1 laying into the work. You haven't your box car filter with you so you probably miss seeing an H-6, or an H-10, or maybe a B-6. Well, you can't have everything. WS-4, a solid string of boxes, except two container cars, is hitting it up at a great rate and as the buggy hits the crossing it does a very realistic imitation of the old shimmy dance. You watch it for a moment and then notice the towerman moving up and down his long bank of levers and turn to watch the detector bars rise and fall on the Rock Island rails and relax as a northbound

dummy tools easily toward you and over the crossing with, in the lead, another of the numerous light Pacifics the road uses in suburban service.

Whoo-o-o--osh! That was New York Central's X-80, really a second piece of the *Maumee*, which not being on the public timetable does not stop at Englewood. This move caught you flat-footed so you recall only the flash of side-rods in the platform lights and a long string of express and mail cars, with one lonesome coach tagging along, unexpectedly whizzing past. Was it a 5400 or a 3100 in the lead? Undecided, as the dummy moves out, you follow up the platform to wait for the Central's No. 609, the *Prairie State*. Right on the advertised at 9:11 she sweeps around the curved station track and comes to a stop just as the *Golden State Limited* comes in from the opposite direction. A sizeable group of passengers are waiting for the western train, so you watch No. 609 get a start and then hike back to the crossing once more for a good look at the big 4-8-2, your fourth live M-50a of the evening. This one, the 4055, is a little bit different, for the boiler and cylinder jacketing sport a bright coat of Rocket red, and atop the shiny gray smoke box are two green lights brightly gleaming. Rock Island No. 3 is the road's top-flight steam-operated train, all Pullman, with all types of sleeping accommodations. As the train moves out you see passing in review a head end car, four tourist cars, a parlor-lounge car, a diner, and four sleek gray Pullmans. Almost even with the last car is a K-64 (2-8-2), on another track of course, so the clatter is uninterrupted as the second section, consisting of strictly head end business, moves past, with the hind man leaning far out the right side swinging a highball to the head end.

Now what? You recall the shop transfer and wonder if it is home in Blue Island. And suddenly you remember that there was another headlight coming down Track 6 behind Second 3. Don't move. Coming at you is another C-43 with everything this side of 12th Street behind him. As he moves from track 6 to track 5 and over the crossing you get a chance to really listen to the theme song of the evening. The wheels on the crossing give out the reiterant staccato melody, obligatoed by the other sounds incidental to a moving freight train, while the thunderous

The copious Rock Island suburban service, which did so much to build up the Englewood district and other south side areas, has trains between Englewood and the Loop at frequent intervals. Most are Blue Island trains; some go to Joliet.

basso ostinato of the cars rolling through the girders of the 63rd Street bridge supports the whole. Heavy loads, light loads, flats, gondolas, freezers, coaches, and all the rest add their share to the variety of pitch and tone, and when the transfer caboose rips by you know that at last you have heard the real McCoy in railroad music.

But subconciously you were thinking of other things—how many, many miles these cars have traveled in the last four years, loaded most often right up to capacity; how in the press of manpower needs for the pursuit of war they were neglected in their common servicing; how the older ones came through with flying colors in spite of many being past retirement age; and lastly you reflect that there is but little trackage anywhere on the North American continent upon which these cars cannot roll. Then you remember an observation that Dan, the crossing watchman at Grove Street, made one evening while you were spending a brief time in Blue Island, and the recollection brings the evening to a most satisfactory close. What he said was: "Without all them wheels rollin' there wouldn't be no United States." Amen.

Howard Christiansen.

The Pennsylvania's pride, the Broadway, is shown making the stop. The Century is usually across station.

All the romance of the great Southwest rides into Englewood with the Golden State Limited from California over the joint Rock Island-Southern Pacific route. Here it is behind a class M-50 4-8-4 with tender bigger than an express car.

P. Slager.

P. Slager.

W. H. Thrall Jr., 6451 South Side Dr., Los Angeles, Calif.

Station Scene

Four engines on five tracks! The scene is at Knoxville Station of the Southern with a northbound train about to leave behind one of the Southern's green and gold Mountain type locomotives. Engine at right brought train from Chattanooga.

W. H. Thrall Jr.

Local Train

This is a scene that the true locomotive connoisseur will never forget, an American Standard engine of truly classic design pulling a light three-car local through the cotton fields. The photo was taken 1938 on the Southern Railway near Selma, Ala.

Lincoln and the Railroads

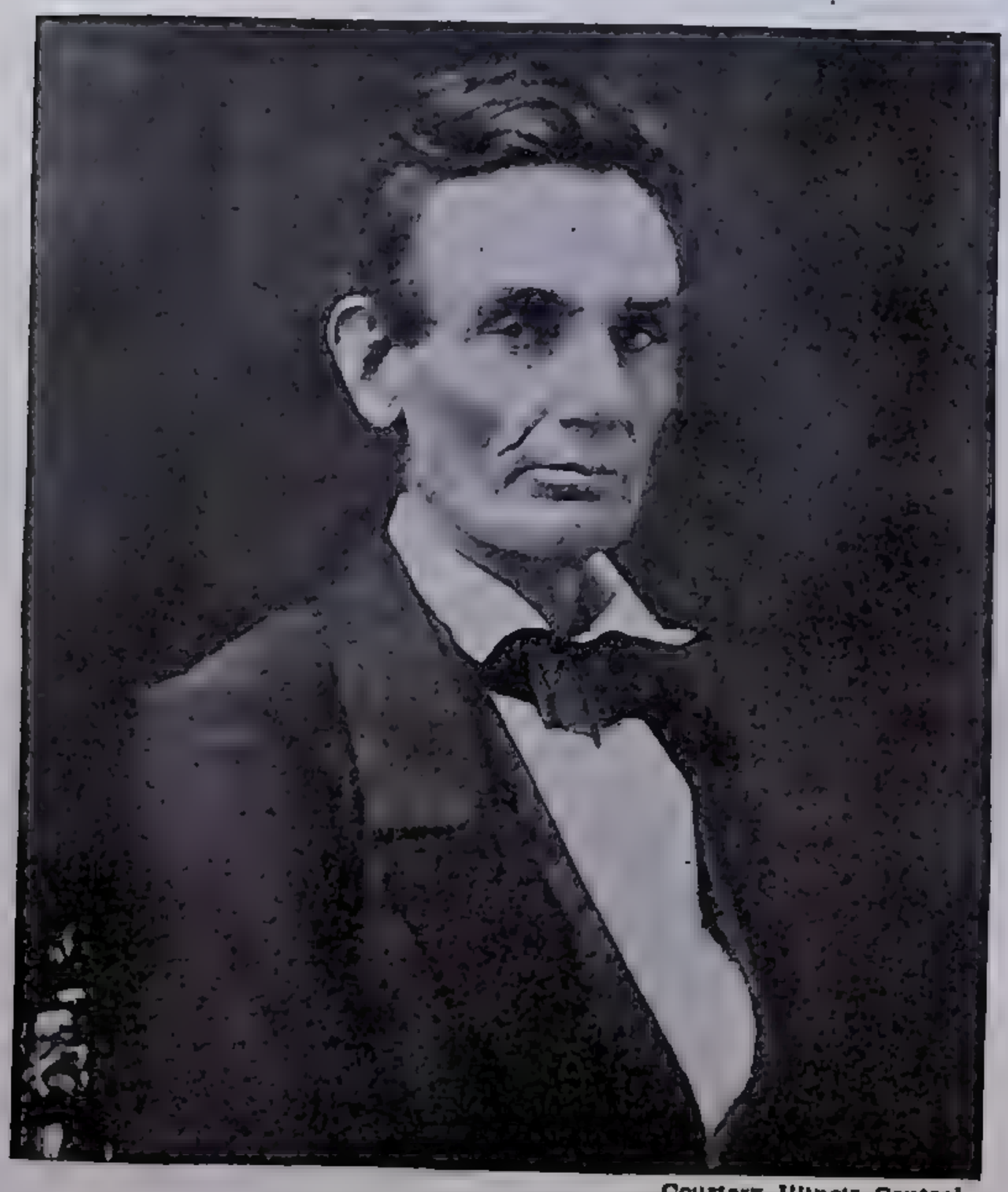
Both as a railroad attorney and as President of the United States Abraham Lincoln had a strong influence on history of our railroads

BY ALBERT R. BEATTY

"Mr. Lincoln, will you entertain an offer from the New York Central Railroad to become its general counsel at $10,000 a year?"

The speaker was Erastus Corning, aging financier and president of the railroad. He was addressing an Illinois lawyer and promising political figure by the name of Abraham Lincoln. The time was February 28, 1860, and the place was the Astor House in New York City.

Before asking this question, Corning had remarked that he understood Lincoln was successful in winning all his lawsuits, a statement Lincoln had laughingly denied, adding, "but I do make it a rule to refuse cases unless I am convinced the litigant's cause is just."



Courtesy Illinois Central.

The offer, sudden and surprising to Lincoln, had been decided on by Corning after he had heard the attorney speak at Cooper Union in New York the night before. Like most of the others in the hall that night, Corning had been impressed, tremendously so. This tall, lanky Westerner would make an ideal legal representative for the New York Central, he had thought. The next morning found the railroad president at the hotel where Lincoln was staying.

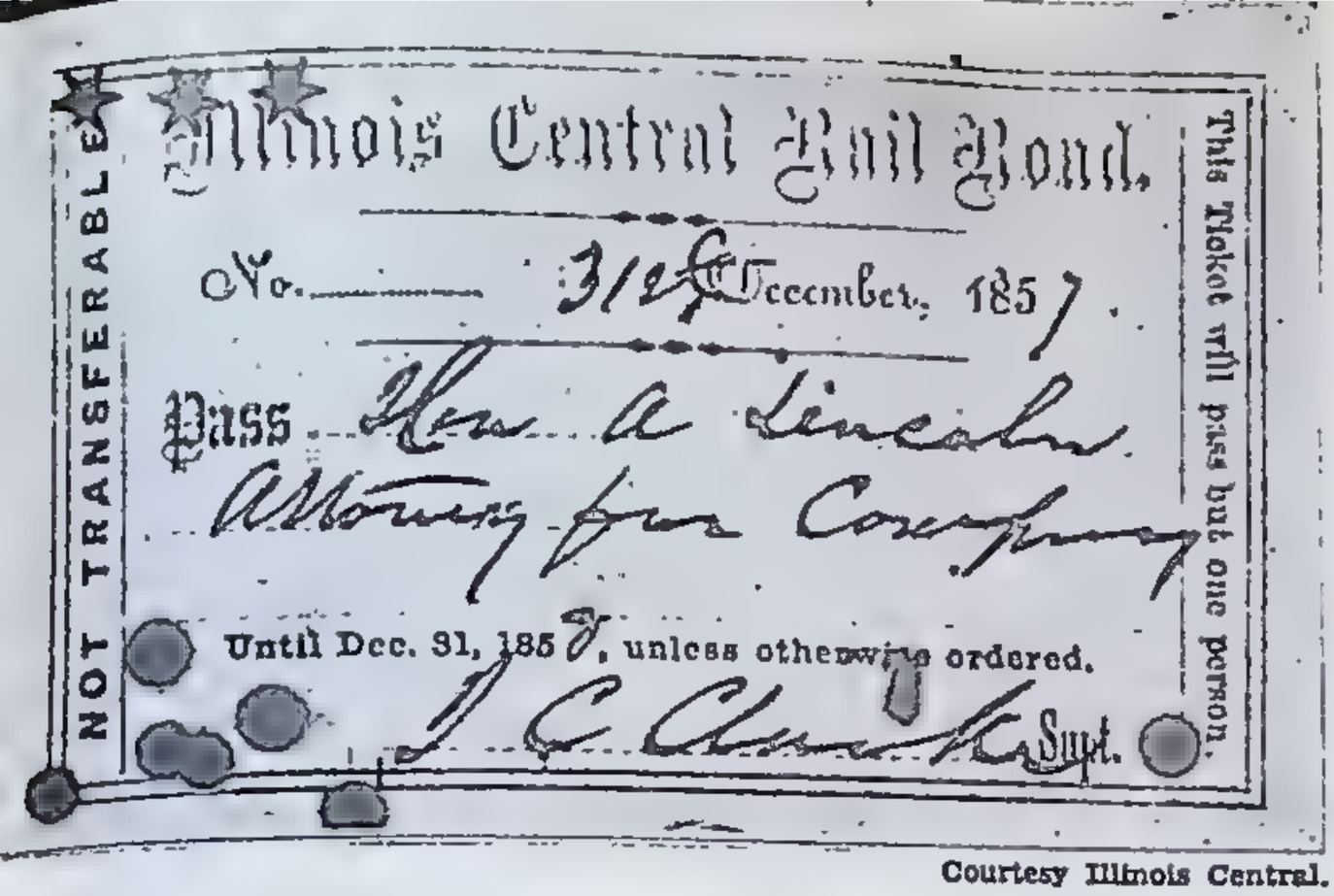
Lincoln did not reply to Corning's offer immediately. He appeared to be weighing the matter in characteristic Lincoln fashion. Finally, he said:

"Why, Mr. Corning, what could I do with $10,000 a year? It would ruin my family to have that much income. I don't believe that I had better consider it."

Corning then urged the man who was soon to be nominated and elected President of the United States to consider the proposition more thoroughly. There was no need for haste, he said, and he would write Lincoln about it later. This he did, but Lincoln's mind remained unchanged.

If Lincoln had accepted Corning's tempting offer—a course said to have been urged upon him by some of his friends and associates—the story of his life would have been vastly different. Indeed, the story of this country's history might well have been different, because there is little likelihood that he would have be-

Abraham Lincoln in 1859 when he was an attorney for the Illinois Central Railroad, handling all its cases in central part of the state.



Courtesy Illinois Central.

Lincoln's Illinois Central pass as attorney for the road for the year 1858, with punch marks indicating that it was used for 10 trips.

come the nation's chief executive had he gone with the railroad.

Lincoln's refusal of the New York Central post was not due to any lack of interest in railroads. On the contrary, he was a friend of the railroads, and had been for many years. Later his official acts in respect to railroads were to have a most important bearing on the development of both the railroads and the country, particularly the West.

"Honest Abe's" interest in transportation began at an early age. It might be said that it started with his first trip down the Mississippi to New Orleans in 1828. On this and subsequent journeys, he had an opportunity to see how commerce moved on the river. Consequently, at first, he was an advocate of improved waterways, because he believed they were cheaper to build and maintain than railroads.

When Lincoln first ran for the Illinois State Legislature in 1832, he took a firm position on the question of the proposed construction of a railroad from a point on the Illinois River through Jacksonville, in Morgan County, to Springfield, in Sangamon County. In a handbill which he wrote and had distributed, the young candidate had this to say on the subject:

"This is, indeed, a very desirable object. No other improvement that reason will justify us in hoping for can equal in utility the railroad. It is a never-failing source of communication between the places of business remotely situated from each other. Upon the railroad the regular progress of commercial intercourse is not interrupted by either high or low water, or freezing weather, which are the principal difficulties that render our future hopes of water communication precarious and uncertain.

"Yet, however desirable an object the construction of a railroad through our country may be; however high our imaginations may be heated at thoughts of it—there is always a heart-appalling shock accompanying the amount of its cost, which forces us to shrink from our pleasing anticipations. The probable cost of this contemplated railroad is estimated at $290,000; the bare statement of which, in my opinion, is sufficient to justify the belief that the improvement of the Sangamon River is an object much better suited to our infant resources."

Whether the voters shared Lincoln's early views on internal improvements, we do not know. But we do know that they didn't elect him to a seat in the legislature in this campaign in which better ways of transportation was an important issue.

In 1834, Lincoln tried again for the Illinois Legislature, and this time was successful. He served four terms as a state law-maker. While a member of the legislature, he staunchly supported the famous Internal Improvement Act of 1837, which provided for an overly-ambitious railroad construction program with little regard as to how it was to be financed. The project ended in dismal and costly failure.

But this didn't dampen Lincoln's enthusiasm for railroads. During his one term in Congress, he favored and promoted legislation to encourage the building of rail lines. In fact, his last speech in the House of Representatives on February 13, 1849, was in support of a "Bill Granting Lands to the States to Make Railroads and Canals." Of those who opposed the act, he asked from the floor:

"What motive would tempt any set of men to go into an extensive survey of a railroad which they did not intend to make? What good would it do? Do men act without motive? Do business men commonly go into an expenditure of money which could be of no account to them?"

Shortly after this, Lincoln returned to Illinois, where he resumed the practice of law. From 1853 to 1860, he was retained by the Illinois Central Railroad to handle the company's cases throughout the central part of the state, and his legal services were also employed by other railroads, among them being the Rock Island and the Alton. Most of his railroad cases involved land rights or were suits filed against the companies for personal injuries, the loss of cattle,

and the like. Records show that he won the great majority of these court actions for his clients.

In spite of these successes, Lincoln ordinarily charged the railroads very modest fees for representing them. For instance, on September 14, 1855, he wrote James F. Joy, counsel of the Illinois Central, as follows:

"I have today drawn on you in favor of the McLean County Bank, or rather its Cashier, for one hundred and fifty dollars—This is intended as a fee for all services done by me for the Illinois Central Railroad, since last September, within the Counties of McLean and DeWitt. Within that time, and in the two counties, I have assisted, for the Road, in at least fifteen cases (I believe, one or two more) and I have concluded to lump them off at ten dollars a case—With this explanation, I shall be obliged if you will honor the draft."

At the bottom of the letter, David Davis, then judge of the DeWitt and McLean circuit courts of Illinois and later a justice of the United States Supreme Court, added:

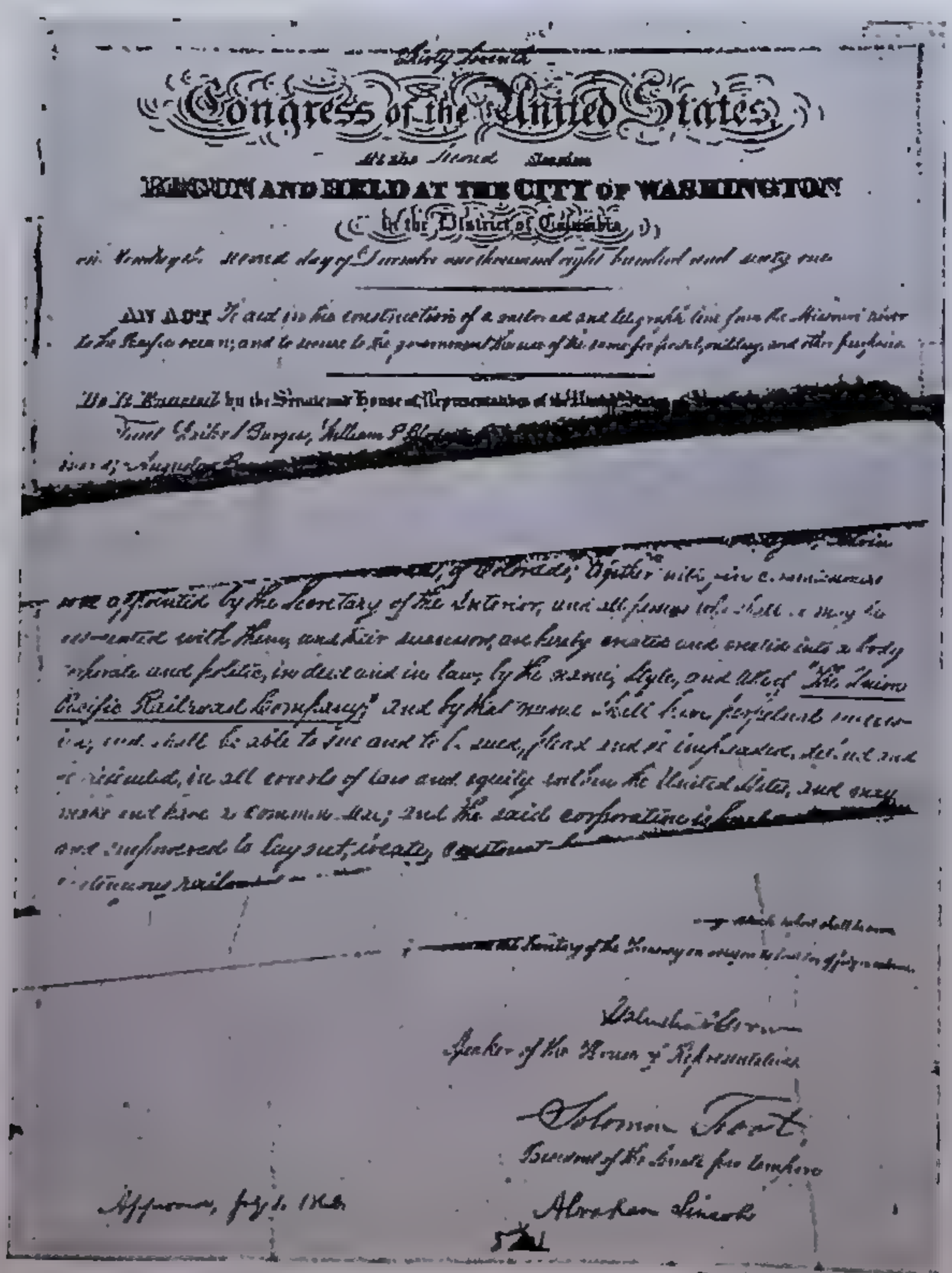
"The above facts are true, and I think the charges very reasonable."

The two most important law cases that Lincoln ever handled were for railroads. One was for the Illinois Central, and, to quote Lincoln, was "the largest law question that can now be got up in the state." The other, also involving an issue of far-reaching effect, was for the Rock Island.

In 1851, the Illinois Central was granted a charter. Whether Lincoln was engaged by eastern capitalists to obtain the franchise or whether he joined local interests in opposing it is a point that has never been settled. However, at the time the charter was issued, the State of Illinois exempted the railroad from taxation, in lieu of which the company was to pay at least seven per cent of its gross revenues into the state treasury.

McLean County shortly thereafter proceeded to levy taxes against the property of the railroad. The Illinois Central vigorously objected, and took the matter to court, with Lincoln and Joy representing the company. The railroad lost in the lower court, but appealed to the State Supreme Court and won. If the final decision had been unfavorable to the railroad, the millions of dollars that it would have been compelled to pay in local taxes would have surely bankrupted the company. For his services in this case, Lincoln was paid $5000—the largest legal fee he ever received.

The Rock Island case concerned the right of railroads to bridge navigable streams. In the face of strong opposition from powerful steamboat interests and river cities, the railroad had thrown a span across the Mississippi between Davenport, Ia., and Rock Island, Ill. On May 6, 1856



Courtesy Union Pacific.

Parts of the three pages signed by Abraham Lincoln as President in 1862 to charter the Union Pacific Railroad.

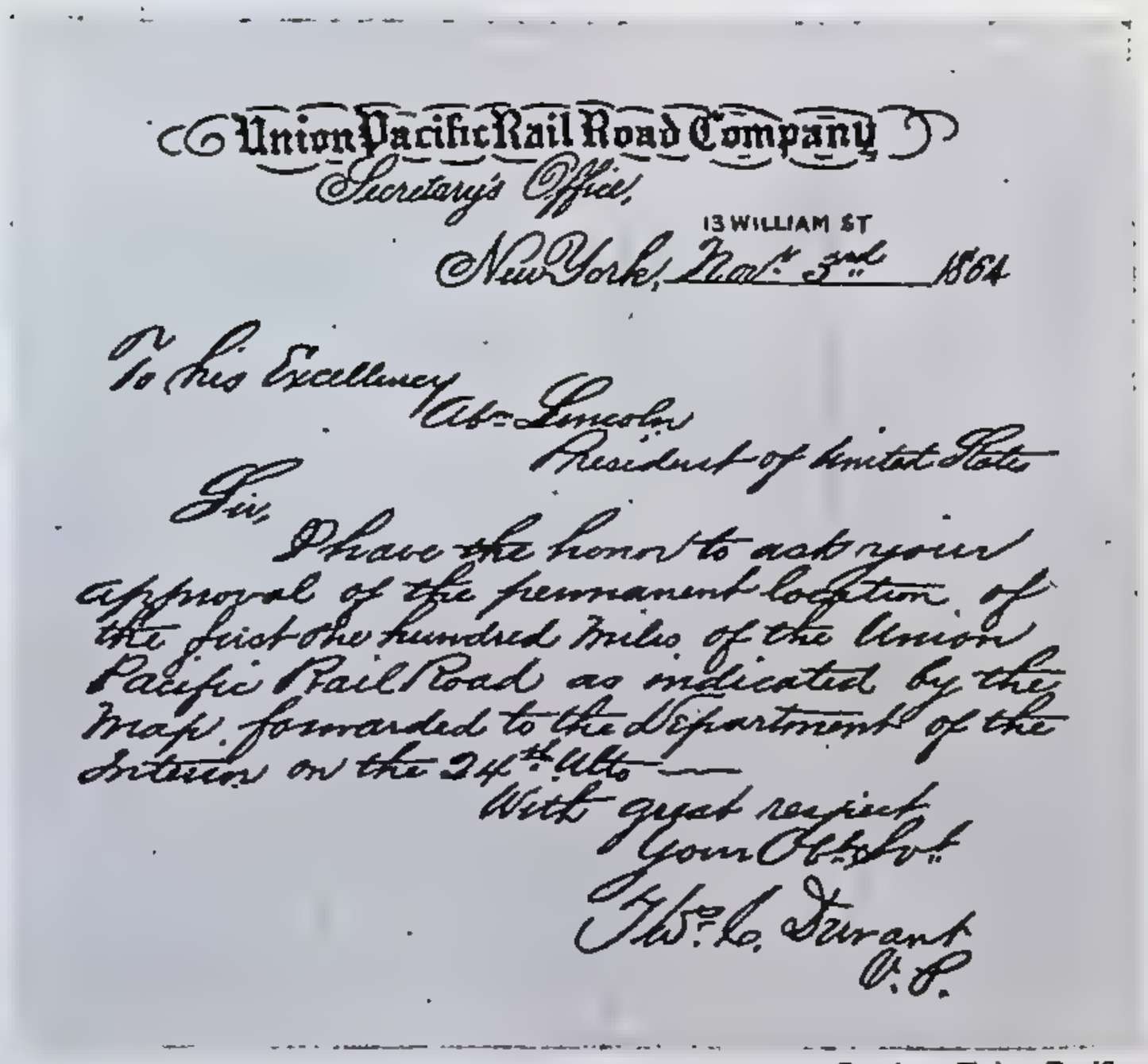
—just 14 days after the bridge had been opened—the steamboat *Effie Afton* crashed into a pier and caught fire, destroying the boat and burning part of the bridge. The boat company claimed that it was accidental, and that the bridge "menaced transportation." The railroad, on the other hand, charged that the boat had either deliberately rammed the bridge or that the pilot had been criminally negligent. An action was brought by the steamboat company to recover damages for the loss of the craft, but in reality it was a test case to prevent such bridges from being built.

The railroad was in a quandary as to who should handle the case for it. It was realized that a capable and popular attorney was needed. The problem was solved by Norman B. Judd, general attorney for the Rock Island, when he told the railroad officials:

"There is only one man in this country who can take this case and win it, and that is Abraham Lincoln."

Acting on Judd's advice, Lincoln was promptly retained by the Rock Island, and the suit was heard before the United States Circuit Court in Chicago. Besides endeavoring to prove that the collision was intentional, Lincoln contended that "one man has as good a right to cross a river as another has to sail up or down it." Pointing out that the railroad operated all year round, while river traffic was necessarily halted during the winter months, he declared:

"This shows that this bridge must be treated with respect in this court, and is not to be kicked about with contempt . . . The proper mode for all parties in this affair is to 'live



Union Pacific Rail Road Company
Secretary's Office,
13 WILLIAM ST
New York, Nov.r 3rd 1864

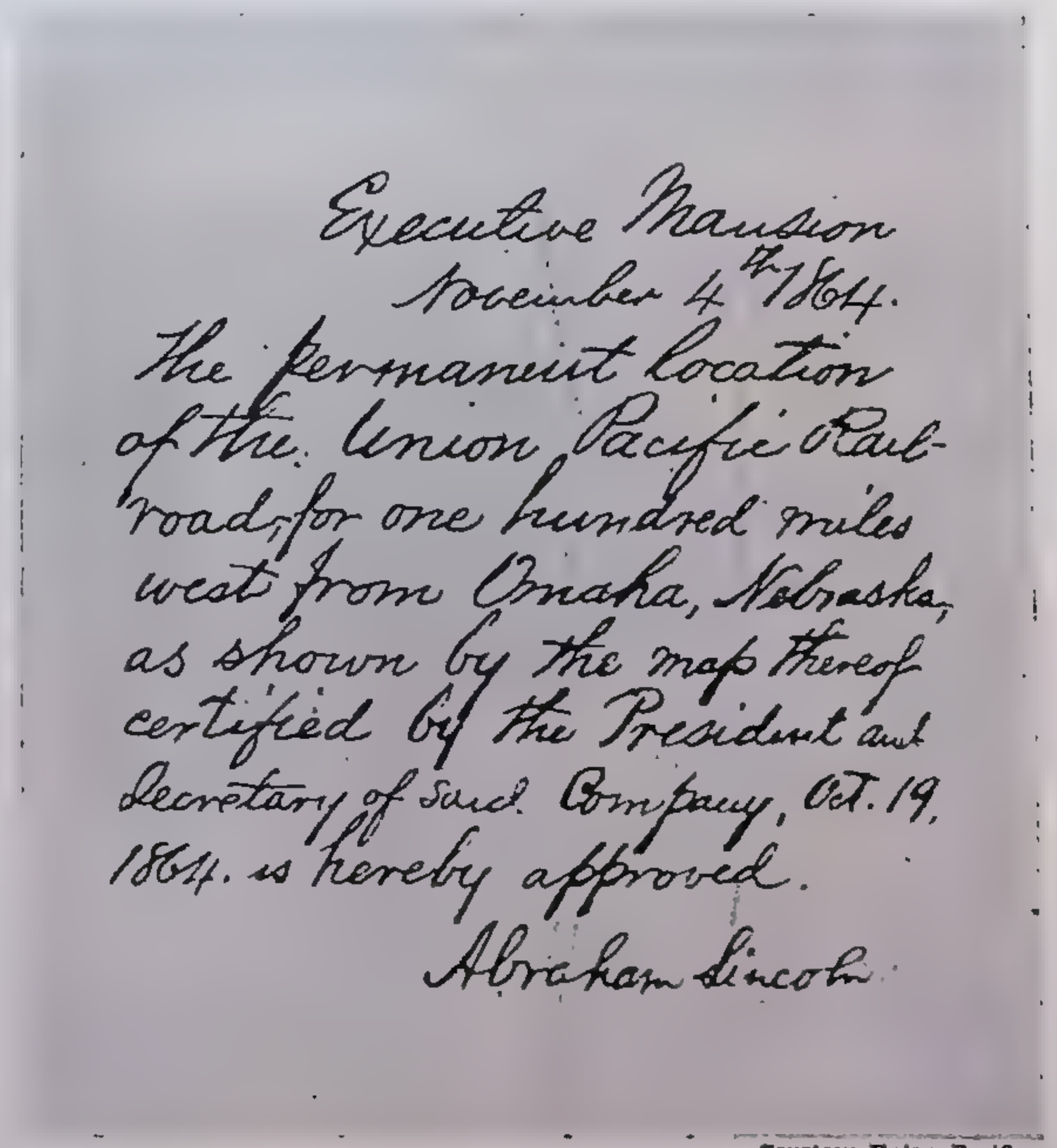
To His Excellency
Abm. Lincoln
President of United States

Sir,

I have the honor to ask your approval of the permanent location of the first one hundred Miles of the Union Pacific Rail Road as indicated by the Map forwarded to the Department of the Interior on the 24th Ult.o

With great respect
Your Ob.t Serv.t
Thos. C. Durant
V. P.

Courtesy Union Pacific.



Executive Mansion
November 4th 1864.

The permanent location of the Union Pacific Railroad, for one hundred miles west from Omaha, Nebraska, as shown by the map thereof certified by the President and Secretary of said Company, Oct. 19, 1864. is hereby approved.

Abraham Lincoln

Courtesy Union Pacific.

The building of the Union Pacific was without a doubt the most important single factor in the growth of the Western United States. Lincoln foresaw this importance and took a real personal interest in the chartering and beginning of the line. Here is his approval of location for the first 100 miles.

Courtesy Rock Island Lines.

Probably the most important railroad bridge in the United States was this original structure of the Rock Island across the Mississippi between Rock Island, Ill., and Davenport, Ia. A case involving this bridge, defended by Lincoln for the railroad and decided by the Supreme Court, forever settled the right of railroads to cross navigable waterways.

and to let live,' and then we will find a cessation of this trouble about the bridge."

Eloquently and logically as Lincoln argued, the jury disagreed. It was not until 1862 that the case was finally settled, with the United States Supreme Court ruling that the bridge could remain. If the decision had been otherwise, not only would the entire pattern of railroad operations in this country have been changed, but the development of the great empire of the West would have been seriously hindered.

Once when Lincoln appeared in court in behalf of the Illinois Central, the opposing lawyer referred to his client as a man with a soul and the railroad as a "soulless corporation." In reply to this obvious appeal to the emotions of the jury, Lincoln said:

"Counsel avers that his client has a soul. This is possible, of course, but from the way he has testified under oath in this case, to gain, or hope to gain, a few paltry dollars, he would sell, nay, has already sold, his little soul very low. But our client is but a conventional name for thousands of widows and orphans whose husbands' and parents' hard earnings are represented by this defendant and who possess souls which they would not swear away as the plaintiff has done for 10 million times as much as is at stake here."

Besides acting as an attorney for railroads, Lincoln served them in another capacity, that of arbiter. He was often asked to settle disputes between carriers, and his judgment was usually accepted by the parties concerned. It was under his direction, also, that the first valuation of the Illinois Central Railroad was made in the summer of 1859.

Both before and after becoming President of the United States, Lincoln was very much interested in the Union Pacific Railroad project. In August, 1859 (nine months before he was nominated for the Presidency), Lincoln went to

Council Bluffs, Ia., on business, and while there talked with Grenville M. Dodge, who had just returned from a surveying trip in connection with a proposed Pacific Railroad. The two-hour interview was described by Dodge years afterwards as follows:

"After dinner at the hotel, Mr. Lincoln sought me out, and engaged me in conversation about what I knew of the country west of the Missouri River. He greatly impressed me by the marked interest he displayed in the work in which I was engaged, and he expressed himself as believing that there was nothing more important before the nation at that time than the building of a railroad to the Pacific Coast. He ingeniously extracted a great deal of information from me about the country beyond the river, the climate, the character of the soil, the resources, the rivers and the route. When the long conversation was ended, I realized that most of the things that I had been holding as secrets from my employers in the East had been given to him without reserve."

On May 18, 1860, the Republican National Convention, meeting in Chicago, nominated Lincoln for the highest office in the land. The Republican platform, which the nominee said, "meets my approval," maintained that "a railroad to the Pacific Ocean is imperatively demanded by the interests of the whole country."

As President, Lincoln did everything within his power to hasten the advent of transcontinental transportation by rail. He advocated and signed the act chartering the Union Pacific Railroad Company; selected Council Bluffs as the railroad's point of beginning, and fixed the width of the track as 4 feet, 8½ inches, the present standard gauge.

But the Great Emancipator, who had recognized the vital need of uniting the Eastern and the Western parts of the country by rail, was not to live to see this accomplished. A bullet from the gun of Actor John Wilkes Booth ended his career four years before the driving of the golden spike at Promontory, Utah.

During his lifetime, Lincoln frequently used railroads, this being particularly true after his one term in Congress. He had to do quite a bit of traveling in order to carry out his duties as a railroad attorney, which is attested to by the fact that his Illinois Central pass for the year 1858 was punched 10 times.

Lincoln also rode trains during his political campaigns and on his journeys to Washington. He made considerable use of them when he toured the State of Illinois as the Republican opponent of United States Senator Stephen A. Douglas who was up for re-election, and when he went to New England and other parts of the country to make speeches.

On some of the President's visits to the battlefields during the Civil War, parts of the trips were by rail. On such occasions, Lincoln observed the condition of the military railroad over which he passed, and asked questions about it. He was also interested in knowing how much of the enemy's railroad equipment had been captured or destroyed by the Union forces, and once, while on a visit to General Grant, Lincoln sent the following wire to Secretary of War Stanton:

"General Weitzel telegraphs from Richmond that of railroad stock, he found there 28 locomotives, 44 passenger and baggage cars, and 106 freight cars."

Two of Lincoln's railroad trips have gone down in history. One was his journey to Washington to assume the Presidency; the other was to Gettysburg to speak at the dedication of the National Cemetery there. A third trip which has been recorded in much detail was made when his body was transported to Springfield, Ill., for burial.

The momentous trip from Springfield to the national capital in February, 1861, took about two weeks, largely because of stops for receptions and speechmaking. It was over most of the railroads then in existence between Illinois and Washington, D. C., what is now the Wabash; the Cleveland, Cincinnati, Chicago & St. Louis; the New York Central; the Delaware & Hudson; the Pennsylvania, and the Baltimore & Ohio. Traveling was done by day, the party putting up at hotels or private homes at night. Lincoln was greeted by cheering crowds all along the route, and everything went well until the train arrived at Harrisburg, Pa. There a quick and important change in plans was made.

Word had reached General Winfield Scott, who had been entrusted with the safety of the President-elect, that an attempt would be made to assassinate Lincoln when he passed through Baltimore. Consequently, the original schedule was altered, and Lincoln was secretly sent back to Philadelphia over the Pennsylvania Railroad in a special train consisting of a locomotive and one car. At the Quaker City, Lincoln was transferred to the regular midnight Philadelphia, Wilmington & Baltimore express, which con-

nected with the Baltimore & Ohio running from Baltimore to Washington.

In this manner, Lincoln arrived in Washington at six o'clock in the morning. Unexpected at this hour, the platform was entirely deserted, and the man who was soon to become the occupant of the Executive Mansion, as the White House was then called, hurried to a waiting carriage.

It has never been settled whether Lincoln prepared at least part of his immortal Gettysburg address in his private compartment while en route to the famous battlefield in November. 1863. Eye witnesses claimed that he did. Said Lieutenant Colonel J. W. Scully, who was on the train:

"While a hundred or more did not see him write it, their testimony is altogether negative. But I know that at least half a dozen did see him write it, and of whom I was one. I saw him take a pad from the hand of some one; sit down in his 'stateroom,' and write something that he held in his hand while delivering that speech."

Here is the testimony of Major General Julius H. Stahel, another member of the party:

"I escorted President Lincoln from Washington to Gettysburg, and was with him in the same car when he wrote something on his knee, which I fully believe was the famous address which he delivered at the battlefield."

The trip was made in a special train consisting of a locomotive and four coaches, the former being gaily decorated with flags and streamers. Part of the way, Lincoln read a newspaper "to see what they say about us," and chatted with those who accompanied him. Then he retired to his compartment, where he may have written some of his address.

For the President's use when he traveled by rail, a private railroad car was constructed especially for him. Built at the Alexandria, Va., military car shops, the car was divided into a drawing room, a stateroom (in the center), and a parlor, the drawing room and parlor being connected by an aisle at one side of the car. The sides and ends were upholstered from the seat rail to the head lining, and the upper deck was painted white, with the coats of arms of the various states in the panels. There were four lounges, which opened out and became beds. Two of these were unusually long to accommodate the President's great height, and the other two were of conventional size.

The exterior of the car was painted a rich chocolate brown. In an oval panel was the nation's coat of arms, and above this the words, "United States," in small gold letters. There was also some gold ornamentation.

The car was never used by Lincoln in his lifetime, but it did convey his body and that of his son, Willie (who had died in 1862), from Washington to their final resting places in Springfield.

The nation went into mourning at the news of the untimely death of President Lincoln on April 15, 1865. Just how deep was the grief of the people can be seen from the fact that crowds with uncovered heads lined the route over which the funeral train passed, and arches were erected over the tracks at many points. Great numbers of flowers were placed in the funeral car, and so many were strewn over the rails that the wheels of the locomotive would frequently slip, almost stalling the train. As a newspaper correspondent who accompanied the party wrote, "it would have been impossible to render greater honors to any mortal remains."

The train which conveyed the body of the martyred President to Illinois was heavily draped with black. The trip, covering almost 1700 miles, was over a long circuitous route by way of Baltimore, Harrisburg, Philadelphia, New York, Albany, Buffalo, Cleveland, Columbus, Indianapolis and Chicago.

By a twist of fate, this trip brought George M. Pullman's first real sleeping car, the *Pioneer,* into national prominence. The car, which had been completed shortly before Lincoln's death at a cost of $20,000, had not been favorably received by railroad men because it was too high and too wide to run on any of the tracks then in use. Pullman had suggested that they change the platforms and bridges, but none of them could see it his way. However, they did just that when Mary Lincoln asked that the car be included in the funeral train from Chicago to Springfield. After this, the *Pioneer* was put into service on the Alton, and Pullman's fortunes were saved.

Lincoln will always be remembered as the Great Emancipator and the preserver of the Union. But he should also be remembered as a friend and advocate of the railroads. He knew what railroads meant to the economic life of the country in times of peace and to the security of the nation in times of war. He knew because he saw these facts fully demonstrated during his lifetime.

W. H. Tobey.

Pacific Great Eastern 2-8-2

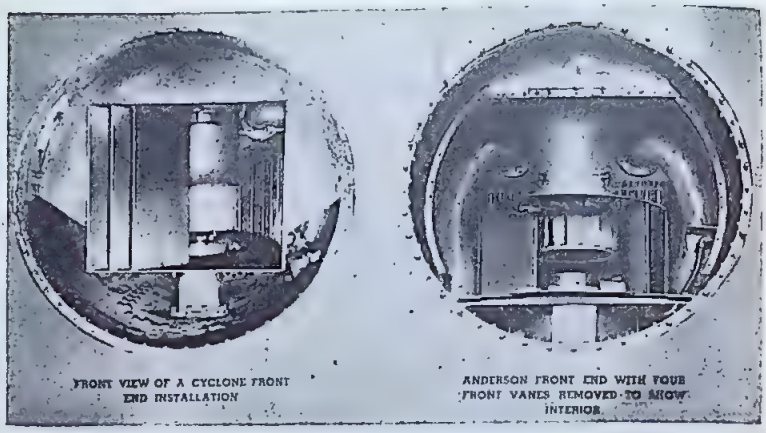
The Mikado, of 2-8-2 wheel arrangement, is the classic design of freight locomotive, as beautifully and perfectly balanced to the eye as a Haydn symphony is to the ear. And for more than 20 years the Mike was supreme as freight hauler. It unseated the reigning Consolidation, 2-8-0, in the first decade of the twentieth century, and until it was in turn unseated by the Berkshire, 2-8-4, and by the Northern, 4-8-4, it was the Mike which moved the nation's goods.

The change to other wheel arrangements came not because the Mikado was unsatisfactory or obsolete, but because in most applications it did not have enough horsepower. It had the tractive effort for starting trains, but not the steam generating capacity to keep them moving at high speeds. And so it was that on roads which had had more Mikes than all other types of locomotive combined, new orders were for newer wheel arrangements. But just to prove the truth that steam locomotives of all wheel arrangements are each basically suitable for certain kinds of traffic, we present the new Mikado type of Pacific Great Eastern, a freight locomotive ideally suited to the traffic and terrain of this particular road, and incidentally one of the most attractive of locomotives in appearance.

Principle Dimensions:

Road classification	282-S-227
Road numbers	160-161
Tractive effort, lbs.	38,400
Cylinder diameter and stroke, in.	20 x 30
Driver diameter, in.	57
Weight on drivers, lbs.	162,000
Weight on pilot truck, lbs.	27,000
Weight on trailing truck, lbs.	38,000
Weight of engine, lbs.	227,000
Weight of tender, lbs.	167,000
Steam pressure, lbs.	215
Grate area, sq. ft.	44.8
Evaporative heating surface, sq. ft.	1630
Tender capacity	7000 imperial gallons water; 2700 imperial gallons fuel.

Modern front ends at right are similar to one developed by Northern Pacific in 1905.



FRONT VIEW OF A CYCLONE FRONT END INSTALLATION

ANDERSON FRONT END WITH FOUR FRONT VANES REMOVED TO SHOW INTERIOR

Deflectors

Gyrating spark deflectors in place of smokebox wire netting are features of the Cyclone and Anderson front ends. In the front views shown of the smokebox interior, the Anderson front end has four deflector vanes removed to show the exhaust nozzle and smokestack.

The front end is the portion of the smoke box through which products of combustion pass before they are discharged through the stack. The exhaust steam from the cylinders also passes out through the front end stack, and this aids combustion by increasing the draft through the firebox.

Instead of the customary smokebox netting to prevent sparks from passing out through the smokestack, the Cyclone and Anderson front ends have deflectors to develop a centrifugal action of gases and sparks until the sparks are reduced and extinguished. The cinders then fall to the bottom of the smoke box while the fumes and waste go up the stack. Whereas a netting requires a small tip through which cinders are forced, the deflector allows an increased nozzle tip area, thus reducing back pressure. Steam failure caused by stopped-up netting is eliminated in the Cyclone and Anderson front ends, and a saving of fuel results.

International Fence

This gate at Calexico is the boundary between Southern California and Mexico. It also divides two railroads. The tracks in the foreground belong to a Southern Pacific branch that leaves the main line at Niland. The Inter-California Railroad starts on the other side and dips below Pascualitos before rejoining SP's Sunset Route 10 miles west of Yuma.

J. L. Watson, 1016 W. 53rd St., Los Angeles, Calif.

Edward T. Francis.

France's Compagnie du Tramway Annency a Thones in the Alps once had four of these two-faced locomotives.

Seeing Double

The two-faced locomotive is on a tram line of the Societé des Chemins de Fer de la Banlieue de Reims et Extensions in the French Alps. The engineer can operate it from either end. This tram line is now abandoned, as are many belonging to SCB, but the system once boasted almost 400 kilometers (250 miles) of meter gauge track (3-feet 3.3375-inches) laid with 20 kilogram (kilograms per meter) vignole rail. Forty-two locomotives of the 0-6-0T and 2-6-0T types pulled 200 passenger cars and 500 freight cars over the line. Abandoned stretches of right of way remain and station buildings, still bearing railroad signs, are now homes.

At Reims, a center of the system, standard gauge cars of the EST system of the French National Railways are transferred to special meter gauge trucks en route to industries on the narrow gauge line. There are several tracks laid with four rails, and two tracks have pits for this purpose. An 0-6-0T locomotive operating on an adjacent track uses a cable and hook to pull the cars onto the pit where meter gauge trucks are put under the axles of the car. When the locomotive has been coupled to the cars they are pulled off the pit tracks. The procedure is reversed when the cars return for transfer to the standard gauge FNR.

Strapping Rails

The earliest railroads in the U. S. were "strap-rails," made of wood and capped with thin "straps" of iron to provide a running surface for the wheels. Iron rails in 18-foot lengths were coming from England in 1831 and by 1850 most railroads were iron. Henry Bessemer of England invented a process of making steel rails which was perfected by A. L. Holley, an American. North Chicago Rolling Mills made the first Bessemer rails here in 1865. By 1890 80 per cent of the nation's mileage had steel rails, now manufactured almost entirely by the open hearth process of the Siemens brothers. The best rail now is "controlled cooled" at a predetermined rate to increase rail life, particularly at ends.

Shortest Railroad

Claiming the title, Shortest Railroad in the World, the Joe Cushing Railway operates daily over a total mileage of 2260 feet in Fitchburg, Mass. General Mills' Farm Service store is the owner now, but in 1871 mill-owner Cushing used the railroad to transport his produce to the main line of the Vermont & Massachusetts Railroad. He exchanged annual passes with officials of large western railways, neglecting to tell them that his own was brief and oxen-powered. Rail fans still may obtain free passes to ride in the box cars or the chunky electric locomotives, at a maximum speed of 10 miles per hour.

"Whatta you trying to do, wreck the train?

RUNNING EXTRA

Grace Witkowski used to be the chief shipping clerk who saw that our huge volume of outgoing mail was safely on its way. Now, as chief order clerk, Grace is the first person to see your letter when it comes in. Our Gracie begins each morning by climbing into her refuge, a four-foot square island surrounded by mail. This mail has already had the "rush" and keyed mail sorted out. The remainder has been run through an automatic letter opener. Grace examines each letter, then puts it in the proper department bin which is emptied several times a day.

If the letter contains an order, Grace punches several keys on a mysterious looking cash register, which was made to order for this purpose and which records what the order is for, a subscription to either TRAINS, THE MODEL RAILROADER, books, map, an advertising order, or a combination of all these, as well as the date the order came in and the amount enclosed. The machine issues a small receipt with this information, to which the sender's name and address is later added. This is just one of the many precautions taken to make certain your order isn't lost, confused, or delayed.

The picture shows Grace nearing the end of the day, with the mail pile running low. Had this been a morning scene, little could have been seen except a solid fortress of mail, and perhaps a glimpse of the top of Gracie's curls.

(Mail keeps coming in in ever increasing amounts, and soon Gracie will need a full time helper. You can help to make the sorting process easier and faster when you write by listing each request on a separate sheet of paper with your name and address on each. This not only saves time, but decreases the possibility of your letter being lost en route from department to department.)

TRAINS readers can obtain a free copy of "Our Railways in Wartime" by writing to Associated British & Irish Railways, Inc., 9 Rockefeller Plaza, New York 20, N. Y. The booklet contains much interesting information and pictures of the details of keeping the British railways running under wartime conditions. Most of it is printed in full color. The supply is limited and is being reserved for TRAINS readers, so be sure to identify yourself as such.

Railroad

Wrong Train, Wrong Direction

Whatever the train shown is (page 24, October 1945 TRAINS), it is certainly not "headed for London." The picture shows the west end of Waverly Station and the train is headed away from London. It cannot therefore be the *Flying Scotsman* itself; it might be the old 5:15 p.m. Edinburgh-Aberdeen coaches off the *Flying Scotsman*—or it might not. Probably not, for that train normally left from the Down Main platform, where the *Flying Scotsman* arrived, and not (like the train shown) from one of the bays.

C. J. Fordyce 3, The University, Glasgow W. 2, Scotland.

[A rap on the knuckles indeed to TRAINS caption writer who doesn't know east from west in Edinburgh.—*Ed.*]

Prompt Response

It will probably seem strange to you that one living so far away should be a Northern Pacific fan. Why I cannot say, but the very mention of the *North Coast Limited*, the monad sign, or cities on the NP route gives me a thrill. One of the trips I mean to take if at all possible is from St. Paul to Portland (is that still the end of the journey?) on the *Limited*. But alas! I'm afraid it will not be behind one of those grand 4-8-4's we see leaving St. Paul, but a Diesel—or perhaps an atomic energy loco!

F. J. Arthur, School House, Fladbury, Pershore Worcs., Eng.

[See page 10 of this issue.—*Ed.*]

Cart Before the Horse

A fraction of the money now being spent on experiments with radio transmission between fixed points on the line and moving trains, or between the ends of trains, would be well invested in installing electric lights in cabooses. A conductor told me he had more or less ruined his eyesight making out train reports by the light of kerosene lanterns; no advance in this respect had been made in his lifetime. A man's comfort, in many cases, is worth much more these days than a raise in wages and would forestall much of the mass irritation and anger that is at the bottom of strike threats.

Edward C. Taylor, 17 Ashland St., Taunton, Mass.

Oahu Railway

On page 31 of the November 1945 TRAINS is a photo of Oahu Railway No. 85 and a caption stating she was built by Lima in 1906. This is a mistake. I have seen and photographed this engine. She is a Baldwin, but my roster is still in transit, so I do not have the date. It was compiled for me by the master mechanic of the Oahu Railway from official records. The only two Lima engines on the Oahu are two Shays: Nos. 43 and 44, built in 1920 and 1921.

W. G. Rattley, P. O. Box 1145, Tyler, Texas.

[We're both wrong. Nameplate shows Alco.—*Ed.*]

The Spirit of the Thing

All square-shooting rail fans will read with regret the humor directed at a Milwaukee Road engineer [Railroad Mail, January TRAINS] who made an outstanding run. All artists will take a bow from an appreciative audience. And where in the wide world can we discover a finer artist than the engineer who wheels the million-dollar *Hiawatha* 85 miles in 70 minutes through heavy rail traffic near Milwaukee and Chicago terminals. Who would be small and mean enough to belittle the veteran hog head in his brief, proud moment at the end of a slick, fast run?

Roy L. Martin, Midwestern Representative, Railway & Locomotive Historical Society.

Mail

Persnickety Reader

Please refer to letter No. 3,699,984¼A in which I mistakenly inform you that the trailing axle of B&M's No. 3700 is booster equipped. Since I wrote that letter the trailing axle has broken, so that booster power is now applied only to one trailing wheel, reducing total tractive effort from 66,550 pounds to 46,976 pounds. All public relations officials is very inaccurate, however, and I can get no satisfaction from *Railroad Magazine* or the motive power department of the Belfast & Moosehead Lake. So I trust that if you print my letter you will not give the tractive effort of No. 3700 as 46,976 pounds, like I just said, because a very reliable fellow I know in the Claremont Junction freight house now tells me that her boiler blew up on election day, which now gives her a factor of adhesion of 0.00 per cent.

Henry B. Comstock, Editor, *Railroad Magazine.*

[An expert at receiving reader letters should be an expert at writing them.—*Ed.*]

Mailfan

My wife just phoned me from home and interrupted the conversation to say, "Well, here comes your copy of TRAINS. The mailman is coming up the path reading it; it's a wonder he doesn't stumble and break a leg. There, he made it! He put it back in the envelope and put it in the mailbox."

John P. DeCamp, University of Cincinnati, Cincinnati 21, O.

Where Was Grable?

In the technicolor moving picture, *The Dolly Sisters*, one scene purports to show the Lackawanna station at Elmira, N. Y., in 1911. Prominent in the foreground is a platform lettered Railway Express Agency.

Howard Gruenberger, Milwaukee, Wis.

[Sharp-eyed reader Gruenberger caught an anachronism all right. Railway Express Agency was formed in 1929 when the railroads took over ownership of the express companies.—*Ed.*]

Honorable Railways

Railfans in the Pacific who have been for years without a sound of a train whistle are overjoyed with the Japanese railways. This section especially is a juice fan's paradise as all lines in the Tokyo-Yokohama section are electrified. The roads have withstood the bombing remarkably, considering the tremendous number of bridges and elevated structures encountered. The government railways, 3-foot 6-inch gauge, are surprisingly modern. Between Yokohama and Tokyo is the Tokaido main line, six track, electrified, with a passenger train every five minutes. Trains are six- to eight-car MU's and up to 14-car regular trains pulled by neat-looking hogs of the Cleveland Union Terminal type. Speeds do not compare with the Pennsy's main line, due to excessive number of curves, but at that trains move at a respectable pace.

W. J. Burton, Yokohama, Japan.

It's All a Matter of Opinion

I yield to no one in my admiration of trains, but the account of CP's Frontenac [December 1945 TRAINS] is too much for me. Your correspondent must have had two pairs of rose colored glasses. He calls the Frontenac a "fine train." In August, 1944, the time of my journey, this train had one air conditioned coach. If that constitutes a fine train in this day and age I am wrong. The bulk of the cars were tourist sleepers used as coaches. It was 30 minutes late the day I took it. Quebec is a clearing place, but to look for chicken and geese in the courtyard of the Chateau Frontenac is too much hogwash.

Thomas D. Ferguson, 101 W. Gansevoort St., Little Falls, N. Y.

SECOND SECTION

What would you do if the mailman came through your front door with his leather pouch all full of letters for you, and with a mail bag dragging on the floor behind him also full of letters for you? What would you do if this happened the next day, and the next, and so on? We were astounded too. We had been planning for some time on increased postwar business, and from 27 employees under manpower ceilings which were abolished late in August we have grown to 50 employees now. We've added special business machines and before the end of the war we had increased our office space. But we never dreamed we'd have as much business to handle as we now have. It is not being handled as smoothly and quickly as we would like, but we are adding capacity as fast as can be done.

Our large, fast new magazine press with capacity greater than our present two presses which are running day and night, will be delivered in six months. It was ordered in 1942. The extra floor space we leased six months ago for January occupancy will be ready for us in another month or two. That will relieve a bindery and mailing room bottleneck as well as give more office space. Several of our old, capable well trained employees are just back from the Army. That helps plenty.

So we expect soon to get back to the excellent service which you have come to expect from Kalmbach Publishing Co. Meanwhile here are some ways you can help:

1. Your local hobby shop or book store very likely has our books in stock. Look for them there before ordering by mail.

2. If you receive what seems to be an incomplete book shipment remember that many of our books, because of size differences or because of postal regulations, must be shipped in separate packages, and that even if mailed together these packages seldom arrive the same day. Wait to see if another package comes before writing a letter of complaint.

3. If you receive a followup renewal notice within a month after you have sent your renewal, please don't complain. It takes from a week to two weeks to enter a renewal on the records, and the notices which come with the last issue of the magazine are in the mail as much as three weeks before you get them.

4. Always send us your change of address at least four weeks before moving. The postoffice does not forward magazines or books unless you leave forwarding postage for the specific purpose.

We are pleased and proud of the evidence that you like our magazines and books. Circulation of both our magazines has doubled in the last three months, book business has tripled, advertising in THE MODEL RAILROADER has tripled . . . and we are trying in every way we know to meet this avalanche, and to restore the service which treats each customer as though he were our only customer. If you haven't been treated that way we are sincerely sorry.

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The Railroad That Built an Empire

New book about the Santa Fe is readable, stimulating history

SANTA FE, THE RAILROAD THAT BUILT AN EMPIRE, by James Marshall. 465 pages, 32 illustrations, maps and drawings. 6" x 9". $3.75. Published by Random House, 20 E. 57th St., New York 22, N. Y.

"WHERE trails end there is a little romantic sadness and the feeling of farewell. Where trails meet and cross there is shouting and laughter and the hot quick words of man against man, the sound of bells and the clink of coins, the pad of feet and the rumble of wheels rolling and the hard breathing of driven things; the smells of cooking fires and new bread, of silks and spices, of dust and sweat."

That is the opening paragraph of the book.

"Down the long, winding grade of the valley of San Bernardino, where the dons lived and loved on the spreading ranchos in the spacious days of long ago. Westward again, and, on the last lap, through the orange groves and past the bright little cities, and the ghosts of the forgotten boom towns hidden amid the eucalyptus trees. Up the last hill to Pasadena and down the last long grade with the throttle closed and a touch of air steadying her. The chime of the whistle sings in triumph as she goes drifting down to the golden beaches and the Pacific's heave of blue at the end of the long trail, the old trail. . . . The trail that is always new."

That is the closing paragraph of the book on page 348.

Before page one are the customary few pages of contents, acknowledgements and foreword. Following page 348 are 117 pages of appendix divided into nine parts: the chronology of the origin of the Santa Fe; Santa Fe town names; railroad slang; Santa Fe departments; trains (of the AT&SF); Santa Fe firsts; financial resume of the Santa Fe; chronological development of the Santa Fe; and index.

There's nothing unusual about the first few pages nor the last 117 pages. Hundreds of books have been done in the same manner. It's what is in between on those 348 pages, from the opening paragraph to the closing paragraph that will fascinate the man who owns this book.

The word "owns" was purposely used. The book might be read once but that will not satisfy. It is so beautifully written that it is a literary thrill. It is so factual that it is a reliable record. It is at once romantic and historical. The portrayal of the development of the Southwest before and after the railroad came reaches into the past and brings it to life again.

". . . Up the long trail in Mexico in 1598 came the freight and emigrant train of Don Juan de Onate, financed by the silver his peons dug from the mines around Zacetecas in Mexico. At the head of Don Juan's train rode his 12-year-old son on a great white stallion draped with scarlet and gold. Then came the *caballeros* in red, purple and white silk, hat plumes waving, jeweled garters glinting in the yellow sunshine. A league north of their starting place, the *caballeros* changed to scarred armor and Don Juan put away his silks and jewels in a great silver bathtub jouncing along in a *carreta*.

"After the horsemen rolled the trade wagons, 83 of them, and 130 colonists driving 700 sheep and cattle into the new wonderland of the North. It took them six months. They drove through the northern passes into the broad valley of El Rio Grande del Norte, looking, as usual, for the Seven Cities. In the valley they stopped three years, while the peons tended flocks and herds, scratched the earth and irrigated from ancient *acequias* of the pueblo people.

"The *caballeros* ranged from the country and fought the Indians. There was no peace in the land. At a famous battle at Acoma, 70 Spaniards slew 600 to 900 Indians and beat the survivors into submission. Afterward, Don Juan and the *caballeros* went northwest, missing the pueblo that was to be Santa Fe, and explored far and wide. His precise route is not known. When he returned a year later, it was to the pueblo San Francisco de Santa Fe."

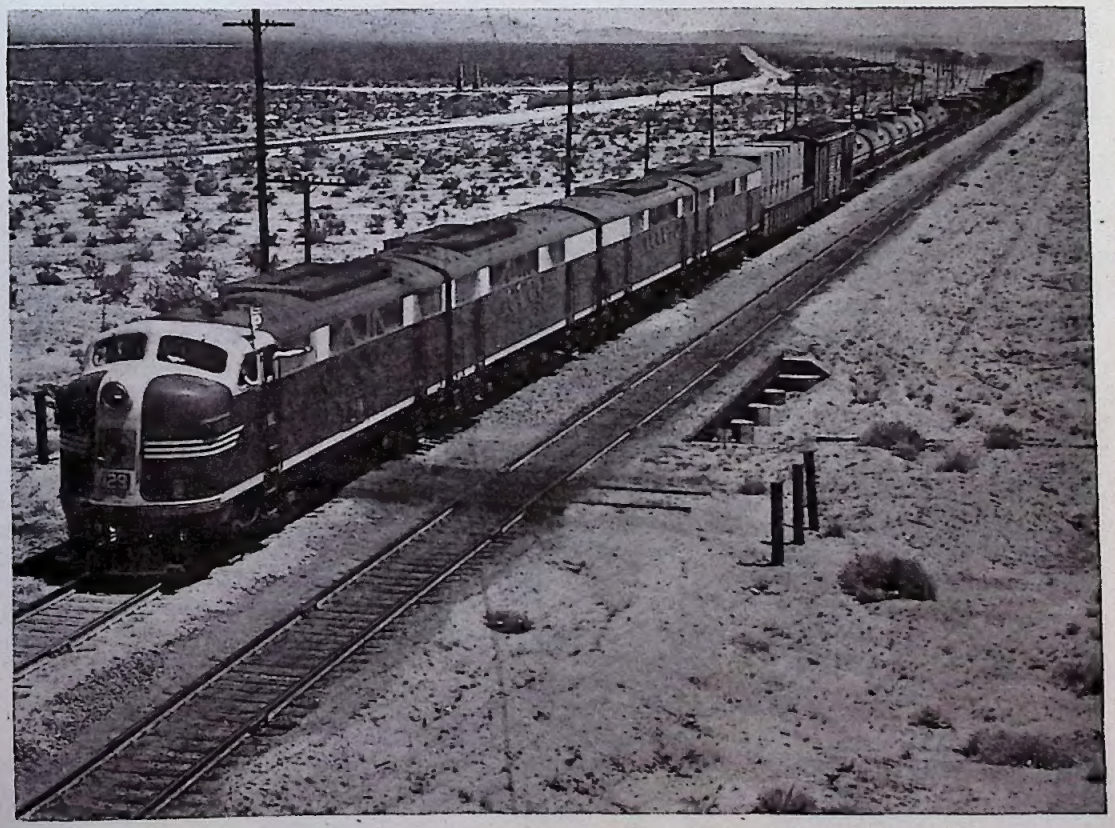
Cyrus H. Holliday was a brilliant young man who, in 1852, wrote the charter for the Pittsburgh & Erie Railroad in Pennsylvania. He was 26, just married and, although badly in need of money, took payment for the work on the charter in stock in the P&E. A year or so later he sold the stock for $20,000 when the P&E was sold to the Atlantic & Great Western. He hurried home, told his pretty young wife that they were rich and that he was going west.

"There'll be railroads to organize out there . . . Santa Fe! That's it, Mary. A railroad from the Missouri River to Santa Fe."

Upon advice of his wife, Holliday invested

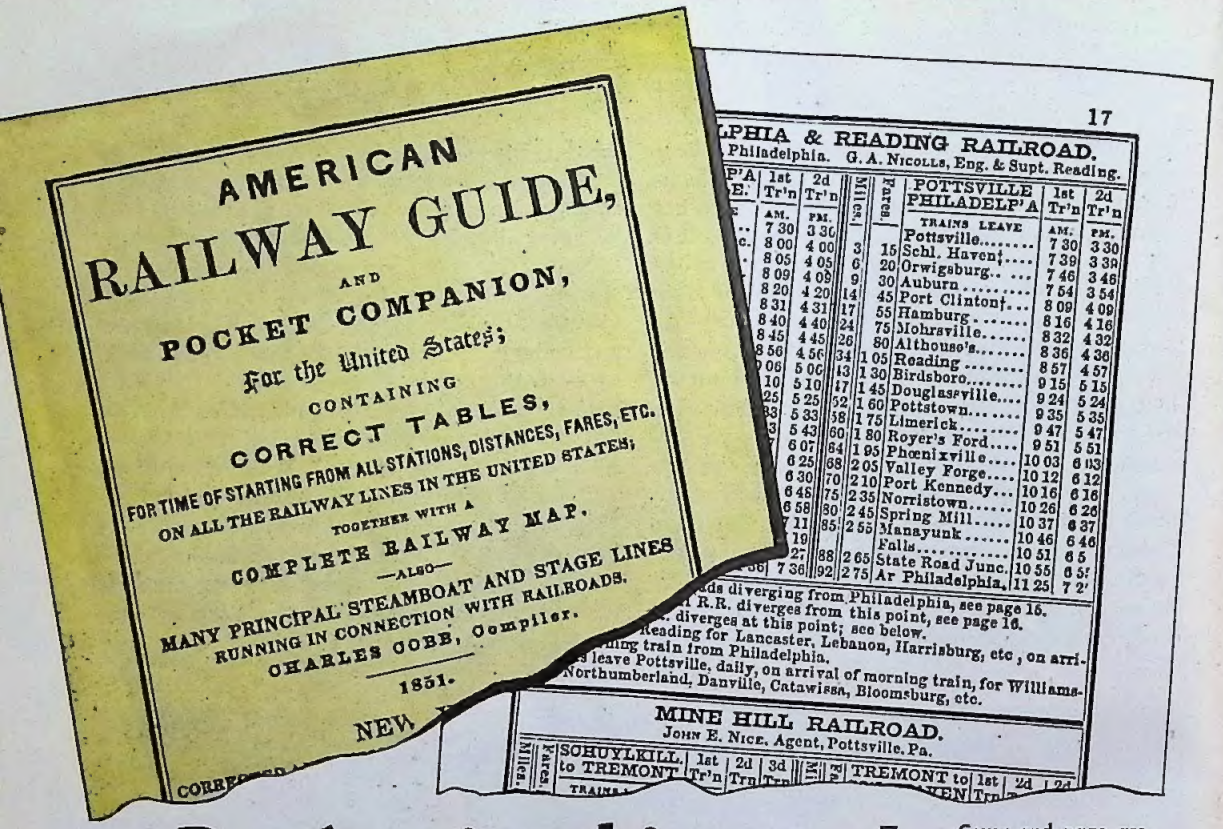
his money in government bonds, took a little cash, and headed west alone. "With a newfound friend, Enoch Chase, and a few other men, he set out up the Kaw River in the fall of '54. The party finally arrived at a place called Papan's Ferry . . . and announced a new town was to spring up there. . . . With customary optimism, young Holliday set aside twenty acres for a state capitol, having decided when the place was three days old that it should become the capitol of Kansas Territory. After some discussion it was decided to name the place Topeka, 'The Potato Patch'—because the Indians used to dig edible roots there. The inevitable Western romanticism has since translated Topeka into 'a good place to dig potatoes.' . . . Strangely enough it is. . . . Just to confound scoffers, within six years Topeka *was* the capitol, largely through Cyrus Holliday's efforts."

Holliday lifted the second shovel of dirt to start the Santa Fe construction in October, 1868. He spent all of his $20,000 and through reorganization raised more. He waded into politics and became known as Colonel Holliday. During the years between 1854, when the Colonel arrived and laid out Topeka, and 1868 there was one war between the states, a drought that left Kansas a desert and the start of an Indian War that cost the United States $30,000,000 and 15,000 lives. How these events affected Holliday and the building of the railroad are vividly told by Jim Marshall. To read the book is to take a journey back through the years, to meet and to know the famous and infamous of the early days and to understand some rudiments of how a great railroad system is built.—J. C. O'H.



Empire Bound

Into the great Southwest empire it built the Santa Fe carries the products of the rest of the country and eastward it moves an even greater load of the products of the Southwest. Its great main line across the deserts of Arizona and New Mexico is a tremendously busy artery, powered for freight exclusively by Diesels, which need little water, and maintained efficiently with heavy rail, modern signaling and smooth well spiraled curves. Here a typical westbound freight climbs from the Colorado River valley at Needles, Calif.



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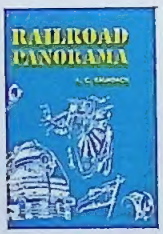

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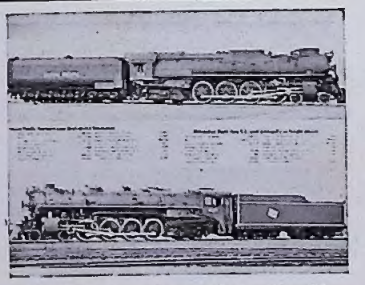

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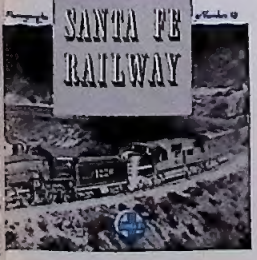

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